

PSYCHOLOGY OF THE KINDERGARTEN-PRIMARY CHILD

BY

L. A. PECHSTEIN, PH.D.

Dean, College of Education, University of Cincinnati

AND

FRANCES JENKINS, B.S.

Assistant Professor of Education, University of Cincinnati



HOUGHTON MIFFLIN COMPANY

BOSTON · NEW YORK · CHICAGO · DALLAS · SAN FRANCISCO

The Riverside Press Cambridge

COPYRIGHT 1927

BY L. A. PECHSTEIN AND FRANCES JENKINS

ALL RIGHTS RESERVED

The Riverside Press
CAMBRIDGE · MASSACHUSETTS
PRINTED IN THE U.S.A.

LOVINGLY DEDICATED
TO
TWO MOTHERS
ELIZABETH DOROTHY PECHSTEIN
AND
REBECCA CONGDON JENKINS

EDITOR'S INTRODUCTION

THE differences that distinguish the education of to-day from that of a generation ago are much more numerous than the similarities. While the hours and the term of the school have not materially varied, the nature of the instruction has been altered and the aims and objectives of the educative process have been largely restated. This change in the character of our educational work has taken place in all parts of the public school system, from the kindergarten to the university.

In no part of our public school work, though, has the change been more marked or more fundamental than in that part which concerns itself with the education of the kindergarten-primary child. Within the life of a generation, and largely as a result of the studies of the child psychologist, an entirely new school has been created in this division of public education. The old beginner's class, taught by a teacher of little training or experience, has given way to a scientifically organized and directed kindergarten-primary school, taught by well-trained teachers who work in accordance with the best modern psychological procedures and in the light of the most approved social objectives. As a consequence the kindergarten-primary school of to-day is a new institution of large educational and social significance, rather than the mere introductory drill school that the primary class used to be.

To set forth to teachers, both those who are in service as

well as those who are beginning their work, and in brief space, the essential nature of this new school; to give the work of the kindergarten-primary school a scientific orientation in the light of the established principles of child psychology; and to show how the needs of the child should form the basis for determining the type of school organization to be instituted, the kind of curriculum to be employed, and the motives and objectives to be set up, has been the purpose of the authors of this volume. It is the feeling of the editor that the authors have done their work remarkably well, and that this little volume will prove very helpful both to prospective teachers and to younger teachers in service.

ELLWOOD P. CUBBERLEY

PREFACE

THIS book, like its companion volume — *Psychology of the Junior High School Pupil*, by Pechstein and McGregor (Houghton Mifflin Company, 1924) — is written with one major purpose: to present the student of kindergarten-primary education with the coördinated point of view of education. As defined in the earlier work, this means that the “best educational practice in a given field is placed side by side with the science underlying that practice.”

The writers believe that this book is a timely contribution to a highly important field of educational endeavor. An earlier statement of faith regarding the problem set for themselves may properly be repeated here:

(a) A science of education, and hence, a real profession of teaching, should rest primarily upon the scientific facts of pure psychology.

(b) In the past half-decade the discovery of psychological facts of child life has been so extensive, and their application in the best kindergarten-primary schools has been carried so far, that a new contribution based upon applied psychology is warranted.

(c) In the coördination of practice with its underlying science are found educational values of immediate worth to the earnest teacher and student of education.

The point of view basic to this book has been worked out in the development of the coördinated ideal of teacher-training in the College of Education of the University of Cincinnati. Through its courses the writers have been enabled to meet with the parents and teachers of children,

well as those who are beginning their work, and in brief space, the essential nature of this new school; to give the work of the kindergarten-primary school a scientific orientation in the light of the established principles of child psychology; and to show how the needs of the child should form the basis for determining the type of school organization to be instituted, the kind of curriculum to be employed, and the motives and objectives to be set up, has been the purpose of the authors of this volume. It is the feeling of the editor that the authors have done their work remarkably well, and that this little volume will prove very helpful both to prospective teachers and to younger teachers in service.

ELLWOOD P. CUBBERLEY

PREFACE

THIS book, like its companion volume — *Psychology of the Junior High School Pupil*, by Pechstein and McGregor (Houghton Mifflin Company, 1924) — is written with one major purpose: to present the student of kindergarten-primary education with the coördinated point of view of education. As defined in the earlier work, this means that the “best educational practice in a given field is placed side by side with the science underlying that practice.”

The writers believe that this book is a timely contribution to a highly important field of educational endeavor. An earlier statement of faith regarding the problem set for themselves may properly be repeated here:

(a) A science of education, and hence, a real profession of teaching, should rest primarily upon the scientific facts of pure psychology.

(b) In the past half-decade the discovery of psychological facts of child life has been so extensive, and their application in the best kindergarten-primary schools has been carried so far, that a new contribution based upon applied psychology is warranted.

(c) In the coördination of practice with its underlying science are found educational values of immediate worth to the earnest teacher and student of education.

The point of view basic to this book has been worked out in the development of the coördinated ideal of teacher-training in the College of Education of the University of Cincinnati. Through its courses the writers have been enabled to meet with the parents and teachers of children,

PREFACE

and to contribute in a small way to the better understanding and practical handling of child life.

It is expected that this book is chiefly to be employed as a text for college and normal school classes in educational and child psychology, especially by those educational institutions seeking in their teacher-training to unify the respective efforts of the kindergartner and the primary teacher. Hence each chapter is followed by questions for discussion. Bibliographies for more extended reading are provided. It is the further hope that experienced teachers, reading circles, and especially parents, will find both purely scientific and practical values in reading the book.

The writers gratefully acknowledge the work of professors under whom they have studied, since this has largely laid the foundation for their own basic psychological and educational viewpoints.

By specific references throughout the text, credit has been given to each writer quoted. The authors have preferred to make use of direct quotations, rather than to paraphrase some one's else ideas without due acknowledgment.

Colleagues and graduate students have played no small part in much of the experimental work included.

The first-named author is responsible for the writing of Section I, the second for Section II.

L. A. PECHSTEIN
FRANCES JENKINS

CONTENTS

SECTION I

GENERAL PSYCHOLOGY OF THE KINDERGARTEN- PRIMARY CHILD

PART I. SCIENTIFIC ORIENTATION IN CHILD PSYCHOLOGY

CHAPTER I. PSYCHOLOGY FOR USE	3
---	---

What is a science — Is psychology a science — The nature and scope of psychology — Applying the science — Limiting the field — Plan of treatment — General point of view — Questions and problems.

CHAPTER II. ORIGIN, DEVELOPMENT, AND PRESENT STATUS OF CHILD PSYCHOLOGY	12
--	----

Causes of backwardness of child psychology — Movements and great educators — Modern tendencies in studying children — Questions and problems.

CHAPTER III. BACKGROUND OF FROEBELIAN PHILOSOPHY	23
--	----

Philosophical character of educational theories — The eighteenth-century influences — The philosophical group — The educational-psychological group — Froebel's three principles — Post-Froebelian developments — Present attitude — Questions and problems — Selected references for Part I.

PART II. THE CHILD AS A CHILD

CHAPTER IV. CHILDHOOD AND GROWTH	36
--	----

What is growth — Types of growth — Growth and the normal curve — Typical studies of growth — General growth characteristics of the period — Differences between growth of boys and girls — Correlations between mental and physical growth — Periods of growth — Factors conditioning growth — Questions and problems

CHAPTER V. THE UNLEARNED ELEMENT IN RESPONSE	55
--	----

Types of unlearned tendencies of behavior — The neural basis of behavior — The doctrine of instinct — Attempt at classification — Questions and problems.

CONTENTS

CHAPTER VI. THE ELEMENT OF LEARNING	69
Neurological basis of the learned element — Basic material for learning — Illustrations of the learning process — Stages in learning — Laws of learning — The learned in relation to the unlearned — Learning and thwarting tendencies — What have children learned — Questions and problems.	
CHAPTER VII. THE INTELLECTUAL ELEMENT	91
General psychology of knowing — Development of the knowledge functions — Significant developments in the psychology of knowledge processes — General intelligence among kindergarten-primary children — Questions and problems.	
CHAPTER VIII. THE EMOTIONAL ELEMENT	110
Classification of the emotional processes — Modern scientific position regarding emotion — Bodily basis of emotional response — Genetic study of emotions — Principles underlying emotional development — Training emotions of children — Examples from experience — Questions and problems.	
CHAPTER IX. THE VOLITIONAL ELEMENT	125
General psychology of volition — Range of volition — The question of will — Volition in the child — The traits of children in their volitional relationship — The training of will — Questions and problems. — Selected references for Part II.	
 PART III. THE CHILD AS A PUPIL	
CHAPTER X. INDIVIDUAL DIFFERENCES IN CHILDREN	134
Individuality and types — A single scale of adaptation — Gifted and dull children — The study of differences in young children — School failures among children — Individual differences in constructive abilities of young children — Individual differences in introversion and extroversion — Significance for education — Conclusion — Questions and problems.	
CHAPTER XI. MENTAL BASIS OF CLASSIFICATION	145
Individualizing treatment — Critical status of the entrance problem — Review of experimental undertakings — The X, Y, Z grouping — Fitting the school to the child — Influence of kindergarten attendance on grade progress — General attitude toward school entrance and classification — Questions and problems.	

CONTENTS

xiii

CHAPTER XII. EDUCATIONAL AND MORAL GROWTH 160

The moral factor -- Sentimentalizing versus psychologizing in the field of morality — Superficial view of play — Critical view of play — The mental kingdom — Building character through free activity — The task of getting children to play properly — Questions and problems. — Selected references for Part III.

SECTION II

APPLIED PSYCHOLOGY OF THE KINDERGARTEN-
PRIMARY CHILDPART I. CHILDREN'S NEEDS AS A BASIS FOR SCHOOL
ORGANIZATIONCHAPTER XIII. MAJOR GROUPS AND GROUPS WITHIN
GROUPS 171

The early school years — Individual differences in children entering school — Intelligence as a guide in grouping — Individual and social development — Larger groupings for social experiences — Small groups to meet individual needs — Differences in past and present practice — Questions and problems.

CHAPTER XIV. THE SCHOOLROOM: ITS FURNISHINGS AND
EQUIPMENT 177

The charm of a dynamic schoolroom — Creating the schoolroom through daily activity — Things old and new — Furnishings which fit into activities — Materials and their care — The teacher's desk — Standards of room orderliness — Questions and problems.

CHAPTER XV. THE DAY'S WORK REPLACING THE STEREO-
TYPED PROGRAM 187

Necessity for a program — Contrasts between the new and the old — Some large periods for which to provide — Welcoming the children — A socializing hour — A period for projects, "a free period" — A period for training in bodily control — Where the three R's belong — Program time for art and music — Questions and problems.

CHAPTER XVI. PROMOTION STANDARDS 195

Promotion as a school mechanism — Promotion as the home sees it — Varying rates of progress — Intelligence as a factor — Health as a factor — Social adjustment as a factor — Progress in

CONTENTS

school subjects as a factor — What the report card promises — Final consideration of promotion — Questions and Problems. — Selected references for Part I.	
PART II. CHILDREN'S EXPERIENCES AS A BASIS FOR ENRICHED LIVING	
CHAPTER XVII. SOCIALIZING THE CLASS	202
The double relationship — Individual and social — The development of individuality — The beginnings of socialization — Elements of social training — Social development through games — Social development through the circle — Questions and problems.	
CHAPTER XVIII. COMMUNITY INTERPRETATION THROUGH THE PROJECT	207
The expanding world of the young child — His energy and purposes meeting this challenge — Projects involving dramatization — Projects involving construction — Excursions as projects — Raising plants and caring for animals — Festivals as projects — Some results of the use of projects — Questions and problems.	
CHAPTER XIX. HOW THE STORY EXTENDS EXPERIENCE. . . 216	
Choice of stories determined by children's needs — Learning to think of people — Learning to visualize conditions — Learning to follow a sequence of events — Learning to question events and purposes — The place and character of illustrations — Learning to interest an audience — The widening experience — Questions and problems.	
CHAPTER XX. CONTRIBUTION OF THE FINE ARTS TO CHILD LIFE	226
Art in the surroundings of the child — Early responses to color and music — Art in relation to children's projects — The problem of technique — Provision for individual differences — Questions and problems. — Selected references for Part II.	
PART III. CHILDREN'S EXPERIENCES AROUSING NEED FOR RACIAL TOOLS	
CHAPTER XXI. EARLY USE OF LANGUAGE	233
Symbols and their value — How a word gets meaning — Growth in vocabulary and in use of idiomatic language — Desirable characteristics in children's language — Control of environment	

CONTENTS

xv

through language — The bogey of language errors — Speech defects — Language situations in a day's work — Questions and problems.	
CHAPTER XXII. GROWTH IN CONTROL OF WRITTEN LANGUAGE	243
Complexities of the problem — Drawing as a language — Units within children's ability — Early training in writing — Early training in spelling — The cooperative composition — Group composition — Individual compositions — Questions and problems.	
CHAPTER XXIII. IMPORTANCE OF THE BEGINNING YEARS IN READING	250
Need for scientific attitude by the teacher — When the child is ready for reading — Directed activities preparing for reading — Teacher's freedom in the early weeks — Problem of the repeater — Varying rates of progress — Thought values essential — The place of accuracy — Some unrecognized abilities — A testing program — Questions and problems.	
CHAPTER XXIV. INTERPRETATION OF EXPERIENCES WITH NUMBERS	262
The old formalism slow to disappear — Number elements in experience to be utilized — Symbols to be understood — Symbols to be used freely — Varying difficulty of combinations — When learning in series is wasteful — Immediate correction of errors — Number games and drills — Number in the child's expanding world — Questions and problems. — Selected references for Part III.	
INDEX	273

FIGURES

1. CURVE OF NORMAL DISTRIBUTION	40
2. GROWTH CURVES IN HEIGHT AND WEIGHT	42
3. GROWTH CURVES IN HEIGHT FOR BOYS AND GIRLS	43
4. MENTAL GROWTH CURVES OF NORMAL AND SUPERIOR CHILDREN	44

TABLES

I. WEIGHT-HEIGHT-AGE TABLE FOR PUPILS OF KINDERGARTEN-PRIMARY AGE	41
II. THE INTELLIGENCE RATINGS OF FIRST-GRADE PUPILS AS RELATED TO AGE	99
III. MENTAL AGE OF FIFTY-FIVE REPEATERS IN FIRST GRADE	103
IV. DISTRIBUTION OF I.Q.'S OF 130 KINDERGARTEN CHILDREN	106
V. MENTAL AGES OF FIRST-GRADE CHILDREN	147
VI. INTELLIGENCE RANGE OF IB GRADES	148

**PSYCHOLOGY OF THE
KINDERGARTEN-PRIMARY CHILD**

**SECTION I
GENERAL PSYCHOLOGY OF
THE KINDERGARTEN-PRIMARY CHILD**

PSYCHOLOGY OF THE KINDERGARTEN-PRIMARY CHILD

• • •

PART I

SCIENTIFIC ORIENTATION IN CHILD PSYCHOLOGY

CHAPTER I

PSYCHOLOGY FOR USE

What is a science? Many centuries ago, when man's knowledge of the world about him was scanty and barely sufficient to enable him successfully to meet the harsh conditions of living, it would have been foolish to speak of the several so-called sciences. Of course the general conditions of physical existence — the physical structure of the known world; its plant and animal life; the basic nature of material substances; the activity of sun, moon, and stars — were practically the equivalents of to-day. Yet in a very real sense primitive man lived in a complex but a very undifferentiated world.

An outstanding peculiarity of man through the ages is that he is constantly becoming conscious of problems, of needs to be satisfied, or of questions to be answered. In the due course of time, therefore, we see the race seeking and finding the answers to its questions. Formulation of these

SCIENTIFIC ORIENTATION

answers constitutes the sciences. It soon becomes evident that certain answers are to be drawn from the facts, laws, and principles of plant life; others from animal life; while still others are derived from the celestial rather than the terrestrial world. When these several *points of approach* to explanation are sufficiently well developed, physics, chemistry, botany, zoölogy, physiology, astronomy, and numerous other specialized sciences evolve as such.

Any science, then, may be viewed as a fairly complete collection of all the facts, laws, and principles of a certain field, with the obligation upon the scientists in that field to organize and classify the materials of the science and, so far as possible, to explain any phenomena of importance. A science naturally satisfies three definite criteria. In the first place, it has its own field of interest and labor, and, to any desired degree of practical need, defines its own boundaries. In the second place, each science controls its occurrences, generally in a laboratory situation, and therefore employs the experimental method. In the third place, the data of a science — its laws, facts, and principles — must be stated in a quantitative, mathematical fashion.

Is psychology a science? Does psychology have a field which may accurately be called its own? Does it reduce its problems to the level of experimental or laboratory control, and finally measure and state its results in quantitative or qualitative terms of mathematics?

A survey of psychological investigation reveals what endless struggle this so-called science has endured in establishing its independence from other fields of inquiry. Dominated for centuries by the entrenched interests of mediævalism —

religion and philosophy — the field which scarcely half a century ago psychology began to block out as its own has been claimed successively as that of the *soul*, *mind*, and *consciousness*.

In addition to this difficulty of delimiting its own special field, psychology was hampered in its early days in making itself strictly of a laboratory character. By the very fact that its interests were predominantly mental, it had to devise a special method — introspection — which has often been criticized as not being the objective, verifiable, and controllable procedure of the other special sciences. No one now seriously questions, however, that in recent years psychology has become increasingly objective, and now employs very profitably the controlled conditions of a laboratory.

When it comes to the third criterion of a science, namely, that its data must be stated in a quantitative, mathematical fashion, it is easy to see that psychology satisfies this demand. The frequent and demanded employment of learning and memory curves, mental ages, intelligence quotients, and correlations between traits attests the serviceability of the mathematical technique.

In fact, psychology has found it relatively easy to devise and employ its own yardsticks, in order that, either in the classical air of its psychological laboratory or in a public school classroom, it might state its measurements in the quantitative terms demanded by all sciences. It has found it relatively a hard task to define its field of work so that substantial agreement would be found, both among psychologists themselves and among fellow scientists, perhaps critical of newcomers seeming to invade their own preëmpted fields.

The nature and scope of psychology. For the practical purposes of this volume we shall deal with psychology as the *science of human behavior*, thinking of its field as that of human activity, interactions, or behavior. While the writers feel that their task of presenting the laws, facts, and principles upon which the behavior or activity of a human group or its several individuals rests is relatively direct and simple, it may frequently prove clarifying and serviceable to utilize material from the field of biology.

Some one has said aptly that the world with the human left out of it becomes one of physics and chemistry; with the human included, it is one of psychology. Any single occurrence, even such an abstraction as a chemical reaction in a test-tube, becomes proper subject-matter for psychology as soon as the observer — that is, the human being — is brought into the situation. When we consider further that the human is so organized that he must behave with reference to and react upon countless influences — associates, newspapers, schools, politics, etc. — the range of possible discussion for psychology becomes practically unlimited.

This is exactly as it should be, for the time is past when the human can be viewed in any other way than as a biological organism. Everything entering to control the behavior of this organism must be an appropriate fact for psychology. At times the best approach to the problem of human behavior may be from the side of the mental powers expressing themselves; again, from the physiological, wherein the major concern has regard to the physical portion of the psycho-physical organism; and, finally, from the observations made external to the individual and quite apart from what may be going on either in his own mind or body.

The fact of fundamental importance for psychology is, then, that of human behavior viewed in the large and most comprehensive sense. It is clear, of course, that, if a full account is to be given of the facts of human behavior, quite substantial inroads will have to be made upon biology, sociology, neurology, medicine, anthropology, even physics and chemistry, for all these bring their facts

to deposit side by side with the strictly mental facts in order that the human reactions may be understood.¹

Applying the science. When we say that the task of psychology is that of formulating, through highly controlled observation and experiment, the various facts, laws, and principles which underlie man's behavior, we have considered only the so-called *pure* side of the science. There remains then for discussion the way the material of the science may be *applied* toward the advancement of human welfare. Herein any science, made to function in the meeting of human wants, becomes elevated from the *pure* to the *applied* level.

What does this distinction between *pure* and *applied* mean for our field of interest?

Psychology as a pure science concerns itself with the laws, facts, and principles upon which human behavior, viewed from all angles, rests. In its applied aspect, its concern is the prediction and control of human behavior. Unfortunately, psychological facts have often been employed for controlling human action for ill, as in the case of fake advertising, allegements of cure, etc., but its more substantial forms exist in such applied fields as advertising, salesmanship, personnel, social work, law, medicine, religion, and education. The trained worker in each of these fields knows the laws, facts, and principles upon which behavior rests, has developed a psychological technique and attitude, and applies these as tools in the prediction and control of the individuals with whom he works.²

Limiting the field. As students of psychology we shall find it advisable to divide the very extensive field of science into its logically distinct parts, in order to restrict our pre-

¹ Pechstein, L A., and McGregor, A. Laura: *Psychology of the Junior High School Pupil*, p. 3. (Houghton Mifflin Co., 1924.)

² *Ibid.*, p. 4.

sent study. It is entirely natural, therefore, that our major interest in this text will not lie in individual psychology as distinguished from social, normal from abnormal, or subjective from objective. Without denying the importance of such fields of psychology as the genetic, the comparative, the ethnic, the experimental, or the physiological, we shall focus our attention on that special field of general psychology commonly denoted as child psychology. It is naturally this special field of child psychology which is of major interest to teachers in the kindergarten-primary field, but it must be constantly borne in mind that the consideration of psychological processes herein is as much a part of the general science of psychology as those operating in adolescence, maturity, senility, or any other stage of human development.

In discussing childhood as a special field of psychology, two further limitations should be pointed out. First, the writers feel the necessity of entering not only certain other special fields (for example, infancy or adolescence) in order to secure facts relevant to their major interest, but also to incorporate data — at times social or individual, sometimes ethnic, often abnormal. Second, the field of childhood will be interpreted to mean, and subsequently treated as, that of the *kindergarten-primary* period of school life. Specifically this period is considered as encompassing the kindergarten and grades one, two, and three as normally understood in a typical school system. In terms of years, therefore, our present interest will be to answer two questions — first. What is known about the behavior of boys and girls four to nine years of age? And, second, How may we predict and

control the behavior of these boys and girls as pupils in school in order that the best educational results may be secured?

Plan of treatment. The general facts of the psychology of the kindergarten-primary child make up the contents of Section I. The first part of this section, following the orientation already provided the student in psychology as a usable science, continues this basic orientation by presenting the more significant trends of modern child psychology, and the background of Froebelian philosophy out of which so much information has developed that is now vital in studying the psychology of kindergarten-primary children. Following this attempt at orientation, we shall treat important matters relating to the child as such — growth, inheritance, powers of learning, and the systematic mental factors of intellect, emotion, and volition. Finally, upon viewing the child as a pupil, the discussion turns to individual difference in children, mental bases of classification, and the important educational problem of moral growth.

Contrasting sharply with the *pure* psychology of Section I, yet based directly upon it, Section II is devoted to methods of proper handling of kindergarten-primary pupils. To be treated first is the discussion of children's needs as a basis for school organization, including such topics as basic and sub-basic groups, room equipment, the work of the day and the year, and promotion standards. Next follows an analysis of children's experiences as a basis for enriched living; in this part will be found chapters on the psychology of socialization, the project, and various discussions of instinctive activities, so basic in the first half of the work.

Finally, the ways in which children's experiences should be employed to arouse need for the racial tools — the earlier languages, reading, number, etc. — are extensively set forth.

General point of view. In bringing the above treatment into execution, the writers have kept constantly in mind the criteria of a science stated in the earlier part of this chapter, especially those demanding that a science pay strict attention to experimental and quantitative relationships. They must make distinctions between opinion and fact; between optimistic idealism, mystical phrases, and mysterious sentimentalities, on the one hand, and, on the other, demonstrable scientific findings. As psychological problems are investigated, the writers wish neither to minimize the importance of the properly philosophical, nor to fail to employ its guiding light; yet they believe fundamentally in the values of psychology, and depend upon this science to provide facts on which may rest the prediction and control of the behavior of the kindergarten-primary pupil.

The writers have attempted to treat scientific material in a very simple and generally in a non-technical fashion. That they may attain this goal of simplicity without making the result too diluted or "popular" is their sincere wish. It is hoped, through using the many illustrations and concrete questions following each chapter, that the reader will ultimately find himself fully at home in the field and that the teacher will find genuine aid for the better meeting of his own problems of instruction and guidance.

QUESTIONS AND PROBLEMS

1. How separate and distinct are the special sciences; for example, physics, chemistry, biology, anatomy, astronomy?
2. Why have the definitions of psychology as "the science of mind" and "the science of consciousness" been avoided by recent writers on psychology?
3. Differentiate between psychology as the science of human behavior and behavioristic psychology.
4. Has applied psychology different problems to face from those of other applied sciences?
5. Make a list of twelve problems of behavior which the student of child psychology may well consider. Estimate their relative importance.
6. How dependent is education as a science upon psychology? What specific forms of indebtedness does education bear to psychology; for example, data, method, technique?

CHAPTER II

ORIGIN, DEVELOPMENT, AND PRESENT STATUS OF CHILD PSYCHOLOGY

NEARLY two hundred years ago the great French thinker Rousseau wrote thus: "I wish that some discreet person would give us a treatise on the art of observing children — an art which would be of immense value to us, but of which our fathers and schoolmasters have not as yet learned the very first rudiments." It is sometimes difficult for the student of modern psychology to appreciate the richness of information available for his instruction and guidance until he sees, in some small way, the background out of which the study of child psychology has developed.

Rousseau preached a doctrine of "follow nature" in the education of children. In his time the true nature of children was almost completely misunderstood. Even to the present day barriers have continued to block both parents and teachers from securing accurate knowledge of the behavior — that is, the psychology — of their children.

Causes of backwardness of child psychology. A hurried review of the historical background of child psychology exposes several outstanding reasons for the tardiness with which Rousseau's wish has been fulfilled.

(1) *Historical attitude toward the child.* The history of child life presents a peculiar and somewhat unhappy picture. Payne¹ has presented a mass of information from anthro-

¹ Payne, G. H.: *The Child in Human Progress.* (1916.)

pology which smites the belief of present-day students. He comments on the well-nigh universal prevalence of infanticide in every age and civilization; the place that human sacrifice, mutilation, abuse, and even slavery have held in the treatment of children. Even within our own memory the reports of such philanthropic organizations as the National Society for the Prevention of Cruelty to Children cite literally thousands of cases of well-nigh unbelievable cruelty of parents to children. Even the insistent urge for better legislation to curb child labor bears witness to the harsh industrial slavery still operative in many States. In spite of the strength of the parental impulse and of the tender emotions, the attainment of the current high regard for childhood has been exceedingly slow. Although the race claims progress in its philosophy, culture, religion, customs, and humanitarianism, it cannot deny a strange inequality of rate in progress. Our day alone is showing an interest in the nature and needs of children highly comparable to the general advancement of which the race boasts.

(2) *The adult point of view.* Not only has the social position of the child been anomalous, but likewise he has been judged from the level of maturity attained by parents and teachers. In dress, manners, morals, and ways of thinking he has been considered as a smaller size of the general pattern ranging from childhood to adult stature. Teachers are just now becoming skillful enough to interpret child activity sympathetically — that is, in terms of the child's own interests and powers, as these are called into action by conditions of an environment appearing perhaps strangely different from that seen through the experienced eyes of the

adult. Most parents are far more lacking than the trained teacher in the power to see clearly upon two levels — their own and that of the child.

(3) *The character of psychology.* Psychology has been actively engaged in becoming a science since the classical days of Wolfe and Locke. In keeping with the custom of the times, however, the interests of psychology for many years were those primarily of the study of the normal mind at maturity. Our leading textbooks of general psychology, although valuable for their discussions of sensation, reasoning, and volition, reveal with unmistakable clearness the gap between the mental life of the child and of the adult. Likewise, it is fair to ask whether the young teacher, fresh from her training in the psychology of the adult mind, brings to her classroom a sympathetic and intelligent understanding of the psychology of the child mind.

New psychological methods, objective rather than subjective, experimental and quantitative rather than narrowly introspective, together with a new type of psychological textbook for students of education all proclaim that the day is gone when the science of psychology accounts for the backwardness of child psychology. A subsequent description of current methods of child study will emphasize the truth of this statement.

(4) *Rigidity of the educational system.* Educational practices change slowly. In established institutions society rarely endorses a revolution, and the school proves no exception to this rule. Many if not most of the great educators have had theories of child life much more accurate than those of their contemporaries, yet even to this day it is

Interesting to see how many school officials object to the reorganization of the school, to any change in the curriculum designed to make it more appropriate to social needs, and to abandonment of a time-honored rigidity of teaching method in favor of the newly found "freedom" now so popular in modern psychology and educational discussion.

Even representatives of the teaching profession have clung to this rigidity in their daily handling of pupils. The familiar quotation of the Continental schoolmaster is a case in point. It is not so very long ago, as history records time, that a Suabian schoolmaster pointed with pride to the results of his fifty-one years of teaching. He had given "911,500 canings, 121,000 floggings, 209,000 custodes, 126,000 tips with the ruler, 10,200 boxes on the ear, and 22,700 tasks by heart." It is also recorded to his credit that "he had made 700 boys stand on peas, 6000 to wear the fool's cap, and 17,000 hold the rod."¹

While it is significant that both the historical attitude taken by society toward children and the basic character of psychology itself have delayed the development of a truly scientific child psychology, the proclivity of educational organizations to resist change and the conservatism of numerous teachers have played a large part. Tremendous advance, however, has been made on the part of society, and psychology is now presenting the needed data regarding the child. The third conditioning factor, the school and its teachers, is now on trial.

Movements and great educators. The origins of modern

¹ Swift, E. J.: *Mind in the Making.* (1898.)

child psychology rest, of course, primarily with the great educators of the past two centuries. Their efforts were descriptive, and their results often colored by their philosophical points of view. A hurried survey of this descriptive period is enlightening.

Comenius may be viewed as a pioneer writer upon the education of children. In his *School of Infancy* (1628-30), and later in the *Orbis Pictus* (1658), he at least makes explicit that the child should be held in proper regard and have definite educational treatment. Locke, in his *Thoughts on Education* (1693), proves an interesting predecessor in attacking rigid methods of discipline and in stressing the educational significance of the innate tendencies and propensities of the child's mind. Rousseau's *Emile* (1762) provided inspiration for a flood of descriptive studies of children.

Basedow, with the *Methodenbuch für Väter und Mütter der Familien und Völker* (1770); Tiedemann's *Observations on the Development of the Minds of Children* (1787); Pestalozzi; Herbart; and finally Froebel with the *Education of Man* (1826) — all augment the descriptive treatment of child life and the organization of educational practice resulting therefrom. Many treatises followed Froebel, with Preyer's *Selle des Kindes* (1882) setting a new standard for systematic observations upon the developing mental life of the child. In due time J. Mark Baldwin published his *Mental Development in the Child and the Race* (1903), which undoubtedly has stimulated the thinking and research of most contemporary psychologists. Thorndike, Barnes, Tracy, Kirkpatrick, and many others, both at home and abroad, may be classified as contributors, during the first decade of the present century,

endeavoring to approach the problem in a more objective and truly scientific way than was possible in the earlier days of unsystematized observations of nurses, parents, and teachers.

In the late seventies Wundt started his psychological institute, borrowing scientific methods from other scientific fields for an attack upon mental phenomena. He aided in the training of G. Stanley Hall, who in his classic study of *The Contents of Children's Minds on Entering School* (1880) aroused interest in the "new psychology" of a more experimental, measurable type than the purely descriptive psychology then prominent. In offering the first valuable study of the minds of children made in this country he stimulated illimitable effort, both of individuals and societies organized for the purpose, toward collecting observations of children's activities. Nearly all the leading educators and psychologists of the next two decades participated in active research in child study, contributing their discoveries to the publications so numerous scarcely more than a decade and a half ago.

In the wave of enthusiasm, it was only natural that the "statistical treatment of the data presented often tended to suggest the appearance of exactness and finality in reports made upon the most intricate problems of child nature by persons ill-prepared to undertake the work." The child-study movement clearly suffered from the unrestrained enthusiasm of its friends. As a result the more scientific students were alienated, and the highly popular, observational, direct-question, questionnaire, group stage of child study passed. Yet one lasting contribution had been made — the child had been discovered and dignified as worthy of

both study and intelligent school treatment. The twentieth century finds psychologists at work, not in compiling hastily phrased descriptions of childish behavior and in giving these statistical treatment, but in attacking this behavior scientifically.

Time does not permit at this point a review of the great mass of scientific data regarding child life secured during the last two decades. So much has been done in this field that, whether one asks regarding investigations of the more general aspects of child mentality — sensory powers, reasoning, general intelligence, and emotions — or of special features — the development of language, number concepts, and reading ability — teachers of children have many aids in the actual performance of teaching. It is fair to expect that the teacher of kindergarten-primary children shall become an applied psychologist. She must, therefore, use the scientific data of modern child psychology for "predicting and controlling the behavior" of her pupils.

Modern tendencies in studying children. The above paragraphs have shown the three stages through which child study has passed — popular description of an individual, compiling question-answer descriptions of large numbers, and scientific investigation under controlled conditions. It is only the last-mentioned stage — that of the last two decades and the present — with which we need concern ourselves.

We can safely afford to pass over the earlier periods with merely a brief enumeration of the typical methods employed,¹ as follows:

¹ Waddle, C. W.: *An Introduction to Child Psychology*, chap. II. (Houghton Mifflin Company, Boston, 1918.)

(a) *Biographical method*, wherein the observer, often quite lacking in skill and accuracy of observing and recording, reports such facts as the time of the first appearance of various childish activities.

(b) *Direct questioning*, wherein the child is asked to respond to a series of direct factual questions regarding fields supposedly within the experience of children of a certain age.

(c) *Clinical*, a method borrowed from the medical school, and aiming to secure a complete picture both of the family and personal history of the child being examined.

(d) *Questionnaire* (the method standardized by Hall), in which the subject fills in the answers to a highly organized series of questions, many of which call for reminiscences of one's mental life of years passed.

(e) *Statistical*, the common mathematical procedure employed by any science in compiling its data and making the truths obvious in a clear-cut, quantitative manner.

No one of the above methods has failed to yield some valuable results regarding childish behavior, and none is completely superseded. Modern investigators insist, however, upon much greater care than was employed previously in regard to such matters as a preliminary knowledge of the nature of the topic to be studied, the accuracy of the instrument (questionnaire, test, etc.) for measuring what it is intended to measure, the character of the group selected for investigation, the skill of the investigator in research, the type of statistical treatment given the data, and the value of the deductions finally made.

Certain further tendencies of modern child study deserve mention:

(a) *Educational and mental measurement.* The last fifteen years have shown a tremendous advance in success of measuring what a child can be taught to do and what he has already been taught. Roughly speaking, the first suggests capacity, general intelligence, or natural endowment; the second, definite ability or learning acquired as a result of experience. Actual measurement more than any other method or modern tendency has brought child study into good repute and has made the psychologist's statements accurate and scientific.

(b) *Controlled experimentation.* Should a child be admitted to kindergarten before the age of five years? — When should he enter the first grade? — What is the best method of teaching reading? — Should the problem-project method of teaching be employed? In seeking the answers to such typical questions, modern child psychology is not finding them in *a-priori* statements. Answers are derived from highly organized and controlled experiments. Generally this process requires two or more parallel groups of equal powers, with the test groups being subjected to the factor in question and the resultant changes finally compared with the control group as a check. It is of interest to note, also, that much of the most valuable experimentation is being carried on in the typical public school classroom rather than in the research laboratory of the psychologist.

(c) *Behavioristic psychology.* Behaviorism as a movement in psychology emphasizes the activity of children viewed and measured wholly objectively. It approaches more closely the anatomical and physiological fields than it does the strictly mental field. Since undoubtedly the influence of behavioristic psychology has been for the good of child

study, the results of several behavioristic studies upon young children will be given prominent place in subsequent chapters.

(d) *Psycho-analysis.* In sharp distinction to behaviorism, the new methods of psycho-analysis purpose to examine the innermost recesses of the mind, to uncover the complexes of the subconscious, and to furnish a proper outlet for repressed desires. This psycho-analytic technique has assisted in explaining as well as in improving cases of childish maladjustment.

(e) *Specialized teaching technique.* A significant tendency in the treatment of the modern child is the readjustment in teaching methods compelled by the findings of child psychology. Typical are the free-play periods of the early years of schooling, socializing the classroom, small groupings of the larger class group, motivating instruction, and employing the project method of teaching.

(f) *Experimental schools.* The present day is witnessing the development of special types of private schools, where, under the freedom of conditions to be found only in the private experimental school, certain educational theories are tried out with the end in view finally of making a contribution to the public school itself. Such nursery schools as the Merrill Palmer School in Detroit, the Iowa Pre-School Psychological Laboratory, the Lotspeich Elementary School of Cincinnati, and the Dalton Plan of schools exemplify the type.

With scientific experimentation being carried on so extensively both in public and private schools, and with research methods so well developed and the results so widely

disseminated by trained students, it is fair to expect that the educational treatment of the kindergarten-primary child will shortly contrast very sharply with that of even a decade ago.

With this historical picture of the origin and slow development of really scientific child study in mind, and this brief review of present activity in the field, the reader will be well oriented in the field of child psychology and will be ready to proceed directly to a discussion of its outstanding facts, laws, and principles.

QUESTIONS AND PROBLEMS

1. Cite conflicting present-day views and attitudes toward children.
2. Compare the educational merits of the outstanding forms of modern psychology; for example, functionalism, structuralism, behaviorism, purposism, Gestalt?
3. Do educational systems still resist changes dictated by scientific findings? Illustrate.
4. Select and review educational publications illustrating each stage of child study (pp. 18-22).
5. What purpose does the statistical method serve in scientific work? How does it function?
6. Seek original illustrations for each of the enumerated tendencies of modern child study.
7. Contrast an experimental school and an experimental laboratory; for example, a physics laboratory.

CHAPTER III

BACKGROUND OF FROEBELIAN PHILOSOPHY

A DISCUSSION of the nature and scope of modern psychology together with a hurried treatment of the history and present status of child psychology, has already been presented. Before proceeding to a detailed treatment of the most important aspects of the psychology of the kindergarten-primary child, it will be of value to look at certain philosophical aspects of our general problem.

Philosophical character of educational theories. It is no doubt true that most teachers approach their teaching problem from the point of view of psychology. All instruction is concerned directly with the experimental, objective, inductive evidence upon which the teacher may base his educational procedures. Over against this psychological interest may be set the philosophical. Few teachers are interested, or trained to think competently, in a fundamental philosophy underlying a general theory of education. Philosophy literally demands a "search for a comprehensive view of nature, an attempt at a universal explanation of things." In so far as this has any practical relation to it, our problem concerns the fundamental character or nature of the child, his broad relation both to the material and the spiritual, the purpose of his being and his ultimate destiny. In contrast with the psychological, the philosophical interest is apt to be far more reflective and rational than experi-

mental and empirical, deductive rather than inductive, *a priori* rather than *a posteriori*.

Both the philosophical and psychological streams of influence have combined to produce our present knowledge of child psychology. The psychological is now actually far more potent in determining educational theories and practices than the philosophical. Eventually the more or less obsolete philosophical will perhaps assume again its former importance as an influence, even actively to influence the highly trained and practically minded expert teacher of the lower grades. In any event, the student of kindergarten-primary psychology should have at least some knowledge of the theories of modern philosophy if he is to become properly oriented in the field, especially if he hopes to be able to interpret sympathetically the points of view of kindergarten teachers who still seek the justification of their practices more from the philosophy of Friedrich Froebel (1782-1852) than from the psychology of the last two decades.

The eighteenth-century influences. The general tone of British psychology, sounded by John Locke (1632-1704), is localized in *associationism*. Interested primarily in the natural history of the way in which the mind secures its materials through sensation and combines these through the various associational processes, this associationistic idea seemed not only barren but fundamentally inaccurate to the Teutonic mind. Gottfried Wilhelm Leibniz (1646-1716) and his disciple, Christian Wolff (1679-1734), the founder of German psychology, started and fostered the national opposition to associationism. To Locke's *nihil est in intellectu quod non antea fuerit in sensu* Leibniz agreed, but added,

nisi, in intellectu. Far back of this *tabula rasa* of Locke lies the basic characteristic of the mind or soul, namely, active force, the drive, the determinant to expression and acquisition, the germ of all our ideas; the strictly volitional. *Voluntarism*, therefore, in sharp distinction to British *associationism*, becomes what may roughly be regarded as a national type for both Germanic psychology and philosophy.

The philosophical group. Let us briefly characterize the contributions of some of these philosophers.

1. *Leibniz*, with his emphasis upon his original forces or *monads*, with these being endowed with *perception* and *desire* or *appetition*; his doctrine of *preestablished harmony* between God and the individual soul and its activity, lays the basis for the conception of active force, the "inner becoming outer" slogan of the Froebelian philosophy.

2. *Immanuel Kant* (1724–1804), certainly for a long period of his productive life betraying the discipleship of Leibniz and Wolff, contributes the immortal doctrine of the *a prioris* — the innate subjective factors of the soul itself. Sensations come to the mind already set in a world of *space* and *time*; their final form is the work of reason. Reason manifests itself as the faculty of knowing (sense of *truth*); in the practical sphere, as the active faculty (sense of *goodness*); in the æsthetic sphere, as the appreciative faculty (sense of *beauty*). All the categories — time, space, quantity, quality, relation, modality; God, freedom, immortality, and the rest — bring us to absolute philosophical spiritualism. "It is the mind which prescribes its laws to the phenomenal world; it is the mind from which the moral law

proceeds; it is the mind and its judgment which make the beautiful beautiful."

3. Kantian idealism becomes a passion with *Johann Gottlieb Fichte* (1765–1814) and *Friedrich Wilhelm Joseph Schelling* (1775–1854). With Fichte, the *real* reality is the Good, active Reason, pure Will, the moral Ego. Knowledge is the creation of the ego, with each and every intellectual act being threefold in character (thesis of the ego, antithesis of the non-ego, and synthesis of the ego and non-ego). Suppress the ego, and you suppress the world. With Fichte's disciple, Schelling, it is not held with Fichte that the ego produces the non-ego (subjective idealism), nor that the non-ego produces the ego (sensationalism); rather, *thought* and *being* (extension) are each derived from a higher neutral principle—the indifference and identity of contraries. Nature and thought parallel each other, each with a common origin—the absolute as will.

4. *Georg Wilhelm Friedrich Hegel* (1770–1831) brings the philosophy of immanency to its high point. The absolute is movement and life; it is successively nature and mind; the immanency and perfect comprehension of the absolute is affirmed. The *Divine Idea* operates through nature and man, through history, through state, while the individual idea is the divine, or perfect, in the process of becoming. Through each experience (thesis, antithesis, synthesis) the individual idea rises higher and higher until it approaches the perfect, the Divine Idea itself. The *ewige besser* describes the natural history of the individual, society, or historical development in its march onward and upward to perfection. Here is possibility of individual development

unconfined, with God — the Divine Idea — working in and through his instruments of expression.

5. *Arthur Schopenhauer* (1788–1860) apotheosizes will, just as Hegel had apotheosized the evolving life of pure spirit; for to him the essential and fundamental thing in us is the *Will*, with thought a mere derived or secondary accident of will. Man and the entire universe, considered in its essence, is a will that objectified itself. Were all sensation and knowledge to be blotted from existence, there would still be left cold, blind, impulsive will. All is *striving, desire, unconscious competition*. “It is that which, not being strives to be, becomes life, objectifies itself in individual existence; . . . it is a perpetual desire to be, the never-ending source of the phenomenal world.” Here is voluntarism, the apotheosis of sheer inner activity. Here is complete emphasis upon the inwardness of the drive to action.

In summary, Leibniz with his concept of the primal dynamic character of the soul; Kant and the *a priori* endowments of the soul antedating experience; Fichte and Schelling emphasizing the true ego at work in constructing the non-ego; Hegel with the philosophy of immanency and the potentiality of the individual idea becoming the Divine Idea; finally, Schopenhauer assigning fundamental position to the concept of inner striving or will as the only true reality — these have brought philosophy to pave the way for an idealistic point of view of child nature to be developed. Herein it is to be held that latent within the child are resident all the factors necessary for perfect development, and that education needs nothing so much as to let child nature lead the way and have its opportunity for expression.

The educational-psychological group. Since educators are at least near-philosophers, their psychological beliefs are often not clearly distinguishable from their general philosophy. We shall attempt now to state, with all possible brevity, the psychological beliefs entertained by certain great educators influencing modern child psychology.

1. *Jean Jacques Rousseau* (1712-78) came as the leader of an emotional reaction against the repressions, both social and individual, of his day. In the great educational classic, *Emile*, Rousseau presents his epoch-making ideas of child psychology. It is held that the child in development passes through several stages of growth and that each stage should have its natural and appropriate activities with the child wholly freed from the repressive influence of aping the adult. The essential need for freedom in physical activity, in order that children may mature properly, naturally leads the child into first-hand experience (sense perception) with the true source of knowledge, namely, the physical, natural world. The child's power to reason, far from being a delayed mental function, early comes into play provided the child is given appropriate situations, especially scientific, toward which his interest and motor activity can be directed.

Here was literally a voice crying in the wilderness of repressive educational methods. It cried out for child freedom, and for an opportunity for the child to grow up naturally and in constant contact with nature. Ultra-emotional, without vision or consistency, yet remaining the most significant influence modern education has known, Rousseau's theories find their development with Basedow, Salzmann, Pestalozzi, Herbart, Froebel, Parker, Dewey, and other modern leaders in education.

2. *Johann Heinrich Pestalozzi* (1746–1827), after striving for the social and educational reforms urged by Rousseau, approaches his task of “psychologizing education” in order that, through education, social reform may be achieved. The instincts and capacities of children must be cultivated and, in this connection, the secret is to make impressions upon the child mind always “commensurate, and in harmony, with the measure and character of the powers already unfolded in him.” The development of all the “faculties,” each at its proper time, is advised, since true education “involves the harmonious balance of all a man’s powers, and this involves the natural development of each and all.” The schoolroom spirit should duplicate both the love and the discipline of the home. Teaching should be dominantly objective, and all elementary instruction should be based upon sense perception. This method has tremendous influence for good, even in the present day, in the teaching of primary arithmetic, language, geography, and elementary science. At its worst, however, the method degenerates into the formalism of Pestalozzi’s over-enthusiastic followers. Banal object teaching, together with insistence upon “proceeding from the simple to the complex,” represents pernicious principles no less repressive or non-psychological than those which they were calculated to supplant.

3. *Johann Friedrich Herbart* (1776–1841) emphasizes, with both Rousseau and Pestalozzi, the “many-sided interests” of children. With him the doctrine of interest assumes paramount importance. As an outgrowth of the new humanistic movement of the day, Herbart, in opposition especially to the Pestalozzian emphasis, stresses the value

of literary and historical materials for developing moral ideas. This new stress leads to the celebrated "culture-epoch" theory of child development, and the parallel task of preparing interesting subject-matter for each period of child development. Of more significance for psychology, however, is the rejection of the Pestalozzian doctrine of faculties and the pioneer development of the doctrine of "presentations" of ideas. The moral aim of education, the value of the historical and literary fields, interest, apperception, correlation, and the natural history of the child mind as it faces and masters a new item (general method of teaching or learning, "five-fold inductive steps," model lesson plan, etc.), all suggest the tremendous contribution of Herbart to important aspects of child education. Had he been less of a philosopher, he would have been a greater psychologist. Yet it is doubtful whether his educational influence could have been greater. His disciples even to-day are legion, preaching often inaccurate interpretations of his doctrines and holding fast to the formalized framework of general method, even in the face of modern and accurate psychological criticism.

4. *Friedrich Froebel* (1782-1852). Froebel was a great man and lived at a significant time. Froebel's lifetime witnessed the convergence of two great influences, the philosophical and the psychological. Philosophy represented essentially immanency and voluntarism. Leibniz, Kant, Fichte, Hegel, Schelling, and others had done their work well. The field of psychology during that period produced the immortal influences of Pestalozzi, primarily, of Rousseau, secondarily.

Coupled with the greatness of the representative thought of his times is the individual greatness of soul of this new thinker, dreamer, experimenter, and philosopher. Strongly religious, mystical, and introspective by temperamental endowment, Froebel early came under the influence of philosophy. He coupled patience with love and believed in his educational mission as a crusader believed in the sacredness of his quest. Froebel will always rate as one of the greatest educational influences of all times.

Froebel's three principles. As a psychologist, Froebel approves Rousseau's idea of education through motor expression instead of by the formal impression methods so current in his day. True, in experimenting, he tended to make motor expression become hardly less formal in practice than the Pestalozzians were making object teaching. Yet the principle was defined for all time, that of learning through activity, self-originated and self-directed.

In opposition to Rousseau's emphasis upon non-social education, Froebel couples his principle of education through motor expression with that of social participation. Soundly basing this principle upon the philosophy which he consistently followed, he maintains that "cooperation is a fundamental social necessity and virtue; that it should be cultivated even from infancy; that the instinctive equipment of the child includes a natural tendency to cooperation; and that this is manifested in cooperative games, which are a fundamental factor in the child's social development."

The two principles of motor expression and social participation involve in application the translation into activity

by a group of children normally at work together of the *inner* feelings (of need, desire, creative urges, problems to be solved, etc.). This necessity suggests the essential psychology of the highly endorsed contemporary project method. Just as Froebel would have had children living normally and happily together and employing singing, drawing, constructive work, plays and dramatization, in order that each might give natural expression to himself (*inner becoming outer*), so at present is it argued that a really educative project is one in which children originate the problem and themselves furnish the energy and resource for carrying it to a successful solution. With Froebel modern project psychology shifts the center of gravity from the teacher to the individual pupils; more precisely, to the minds and energies of the members of the schoolroom group.

The third principle of symbolism suggests the philosophical influence, just as the first two suggest the psychological. This principle argues that the same processes of change and development are found in the physical, social, mental, and spiritual realms. Knowing nature thoroughly, therefore, by this argument, would constitute understanding other realms. Hence the importance of studying certain selected gifts (ball, cube, etc.), since these physical objects represent universal truths which may be comprehended even by children.

Symbolism in kindergarten-primary practice has largely been superseded by other methods. Since one is now sufficiently advanced from the period during which the kindergarten had to take firm and uncompromising stand in order to survive in a hostile world of educational formalism, one

may safely raise a question or two regarding the principle of symbolism.

Was Froebel teaching that the child was to see fundamental symbolic truths while yet a child, or to view them simply in child fashion, gaining fuller comprehension at his maturity? Again, was his main educational treatise *The Education of Children*, or *The Education of Man*? Did he or his followers cause his educational philosophy to become monopolized, almost up to the present decade, by the teachers of pre-school children? Finally, how far have modern schools, with all their wealth of equipment, teaching materials, laboratories, etc., become wholly direct and materially self-contained? Do they still see and teach beauty, harmony, the good and the true, as found in nature? Are books still sought in running brooks, sermons in stones, and *good in everything*? Is it still true that "poems are made by fools like me, but only God can make a tree"? Perhaps, if Froebel were living now, he would be among the first to suggest drawing upon the richness of modern social life for occupations, gifts, plays, and the curriculum in the widest sense. Perhaps he would urge also that certain fundamental philosophical points of view be mastered only after actual experience with life, and not while the pupil is still in swaddling clothes.

Post-Froebelian developments. The establishing of kindergartens in a few places in the United States (1850-75), the founding of the training schools, the 1875-1900 generation during which the kindergarten became common, the development and growth of the manual training movement, the somewhat reluctant introduction into the primary

grades of "busy work" — these are historical developments due to Froebelian influences and are epochal in the history of education.

Two American leaders, Parker and Dewey, play important rôles in the experimentation with Froebelian principles and in the final permanent contribution to elementary school practice. Both deserve more than cursory attention. They stress (*a*) "artistic and industrial activities as important forms of expression; (*b*) training in expression through thought; (*c*) the importance of the real audience-situation as fundamental for training in expression." Dewey, in his experimental school at the University of Chicago, demonstrated how the school may become a miniature society and how children can actively and actually reproduce in the school certain important social and industrial enterprises. Other psychologists, notably James, Thorndike, and Judd, tend to emphasize the importance of educating by means of verbal expression, although they do not minimize the importance of the artistic and industrial forms of expression which Froebel's method first emphasized and which the educational scientists of America have since made applicable to the elementary school.

Present attitude. The preceding paragraphs have shown the philosophical and psychological backgrounds of Froebelian teachings, and have emphasized briefly the post-Froebelian developments. In the opinion of the writer these teachings are preëminent in the majority of recent reform tendencies in elementary education; and many of our modern educational activities — motivation, socialized recitation, project method, socializing the curriculum, standard-

ized grouping — are natural outgrowths of a fundamental belief in socialized activity.

The subsequent chapters will present the outstanding facts with regard to the natural activities of children, and demonstrate how these may best be turned into educational assets.

QUESTIONS AND PROBLEMS

1. List three fundamental concepts which you consider basic to your teaching practice. Analyze these to determine whether they are based on psychology or philosophy, or a combination of both.
2. Can you identify *associationism* with the Thorndikian psychology, that is, *bond* psychology?
3. Do you consider it accurate to classify British and Teutonic psychology as associationism and voluntarism respectively? What influences on modern education has each system exerted?
4. Do you see any current educational evidences for belief in *a priori*? Cite instances. Can these be proved to be innate?
5. What relation does the basic educational philosophy of John Dewey bear to that of Schelling Of Herbart?
6. Wherein does Kilpatrick's *project method* and its basic psychology originate from Froebelian principles?

SELECTED REFERENCES FOR PART I

- Angell, J. R. *Psychology*. (1908.)
- Hollingworth, H. L., and Poffenberger, A. T. *Applied Psychology*. (1920.)
- Norsworthy, N., and Whitley, M. T. *Psychology of Childhood*, chap. I. (1918.)
- Parker, S. C., and Temple, A. *Unified Kindergarten and First-Grade Teaching*, chaps. I, II. (1925.)
- Parker, S. C. *A Textbook in the History of Modern Elementary Education*. (1912.)
- Pechstein, L. A., and McGregor, A. L. *Psychology of the Junior High School Pupil*, introduction. (1924.)
- Pillsbury, W. B. *The Essentials of Psychology*, chap. I. (1921.)
- Waddle, C. W. *Introduction to Child Psychology*, chaps. I-II. (1918.)
- Watson, J. B. *Behavior*, chap. I. (1914.)
- Watson, J. B. *Behaviorism*, lecture I. (1925.)
- Weber, A. *History of Philosophy*. (1909.)

PART II
THE CHILD AS A CHILD
CHAPTER IV
CHILDHOOD AND GROWTH

In the three preceding chapters the reader has become oriented in the field of modern child psychology. It is hoped that by this study of the historical development of modern child psychology — both in its scientific and philosophical aspects — the student has become impressed with a desire to consider child psychology really scientific in character, as well as with a zeal to inspect at close range the more typical facts of child behavior.

The present and several subsequent chapters are concerned with presenting the most important of these facts. The aim of this chapter is to provide a discussion of childhood and growth.

What is growth? Growth is a basic characteristic of living organisms. Growth means the progress that a living structure, such as a plant, animal, or human, is making toward the norm of maturity for the group to which this growing organism belongs. Significant for students of child psychology are the facts that children are growing and in many different ways, and that they are progressing at varying rates toward those final stages of development which characterize adult attainment or maturity.

Types of growth. Physical facts can logically be kept

apart from the strictly psychological; yet both physical and mental growth must be considered if the student is to obtain a clear and full knowledge of all the factors that enter into child behavior. Both ways of estimating growth give us several interesting ages.

(1) *Physical ages.* Physical growth may be estimated by three so-called ages—chronological, anatomical, and physiological. *Chronological age* is development as expressed in the actual number of years, months, and days that a child has lived. *Anatomical age* records growth as determined by the development of the various anatomical features of the body, such as its height, weight, chest girth, circumference of skull, length of arms, or number of teeth. *Physiological age* (erroneously considered as synonymous with anatomical) is more concerned with the functional development of the structures—that is, their stage of maturity. For example, in estimating physiological age one considers whether the boy's voice is changing, what sexual functions are operative, what metabolic processes are at work, whether glands are properly functioning, etc.

(2) *Psychological ages.* Mental, educational, moral-social, and religious ages connote development as scaled in nonphysical terms. Although some device is required to determine these, no calendar, no footrule, no tape, no scale balance, no test-tube will suffice. Very adroit scales and tests, largely measuring the child's response to situations into which his mentality enters, are employed in estimating these psychological ages. *Mental age* seeks to classify the child's development in general intelligence, uninfluenced so far as possible, by the results of definite school instruction.

Educational age denotes development as measured by the commonly accepted standards of school attainment. *Moral-social age* is concerned with the development of ability to effect socially approved group adjustments; *religious age* singles out for measurement, from the moral-social and educational ages, the development of strictly religious beliefs and practices.

Sammy is, by accident of birth, five years and two months of age (chronological); in height, weight, and lung capacity he is normal (anatomical); and his processes of digestion, glandular secreting, etc., are likewise typical for a five-year-old child (physiological). In general intelligence he has a mental age of seven years and an intelligence quotient of 135 per cent; his moral-social age is eight, presumably a concomitant of his high mental age, but more probably because his parents have allowed him to participate in their own social activities since his infancy; he goes to Sunday School and manifests a religious interest and insight somewhat beyond that expected of a five-year-old boy.

Normal growth consists essentially in a balanced development along all lines suggested by these so-called "ages." Sammy's description shows a fairly normal development, except that certain of the more mental phases of his growth have been rapid. The student needs only to analyze hastily the children of his acquaintance, or even his adult friends, to find great variations, not only between physical development and mental growth, but variations also within each of these major forms. This discrepancy suggests the question of the distribution of growth.

Growth and the normal curve. When the growth of large

numbers of children is measured, from any one of these points of view, and the results are represented in a composite picture, the effect is interesting. Such a growth presents what is called the curve of normal distribution. For example, if several hundred kindergarten children are selected whose chronological ages lie between exactly five years and five years and a half, and each one is then carefully measured for height (anatomical age) or general intelligence (mental age) or social behavior, the total results for any single type of measurement show certain definite characteristics:

- (a) A large percentage of the results are at, or either slightly above or below, a most common or "average" value.
- (b) Scores that are either above or below this "average" decrease successively in frequency in proportion to the extent of their variation from the norm.
- (c) In providing growth, nature seems to aim at the "bull's-eye," most frequently hitting it squarely, or nearly so. Shots farthest removed from the center, or norm, are fewest in number and steadily decrease as they go wider of the mark.
- (d) A graph of this typical distribution shows a symmetrical, bell-shaped curve (see Figure 1), which may apparently always be obtained, provided one is measuring a group sufficiently large and unselected, and a group in which the factor being measured is possessed to some degree by all.

From the graphic deductions above, certain interesting corollaries regarding the growth of kindergarten-primary children may be drawn:

(a) Children of the same, or nearly the same, chronological age will tend to distribute *normally* when their growth is determined by any other single age — anatomical, physiological, mental, educational, moral-social, etc.

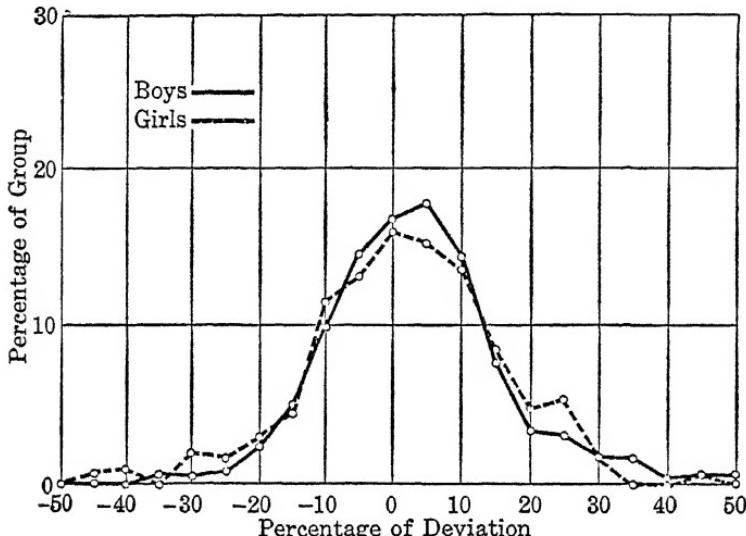


FIG. 1. CURVE OF NORMAL DISTRIBUTION

Percentage deviations of gifted children from the norms in breathing capacity for age and height. (Baldwin, B. T., *Genetic Studies of Genius*, vol. I, chap. VII, "Anthropometric Measures.")

(b) Children selected as quite alike by a measure other than chronological age will distribute normally when scaled by certain other schemes of measurement.

(c) Children will shift their relative position within the group when a different measure of growth is applied. For example, with a normal distribution found for the height of a group of five-year-old boys, a normal distribution of their mental ages will be found, but one's immediately adjacent

TABLE I. WEIGHT-HEIGHT-AGE TABLE FOR PUPILS OF KINDER-GARTEN-PRIMARY AGE¹

GIRLS					BOYS					Ht. Ins.
5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	
38	33	33			34	34				38
39	34	34			35	35				39
40	36	36	36		36	36				40
41	37	37	37		38	38	38			41
42	39	39	39		39	39	39	39		42
43	41	41	42	41	41	41	41	41		43
44	42	42	42	42	44	44	44	44		44
45	45	45	45	45	46	46	46	46	46	45
46	47	47	48	48	47	48	48	48	48	46
47	49	50	50	50	49	50	50	50	50	47
48		52	52	52		52	53	53	53	48
49		54	54	55		55	55	55	55	49
50		56	56	57	58		57	58	58	50
51			59	60	61		61	61	61	51
52			63	64	64		63	64	64	52
53			66	67	67		66	67	67	53
54				69	70			70	70	54
55				72	74				72	72
56					76				75	76
57					80					56
58									79	57
59									83	58
										59
AGE — YEARS	6	7	8	9		6	7	8	9	
Av ht (short)	43	45	47	49		43	45	47	49	
Inches (medium)	45	47	50	52		46	48	50	52	
(tall)	47	50	53	55		49	51	53	55	
Av. (short)	4	4	4	5		3	4	5	5	
annual (medium)	5	5	6	7		4	5	6	6	
gain, (tall)	6	8	8	9		5	7	7	7	
Pounds										

Age is taken at the nearest birthday, height at the nearest inch, and weight at the nearest pound. A pupil between five and a half and six and a half years is considered as six years old.

The following percentage of net weight has been added for clothing (shoes and sweaters are not included).

For weights from 35 to 65 pounds — 3.0 per cent (girls), 3.5 per cent (boys).

For weights from 55 to 82 pounds — 2.5 per cent (girls), 4.0 per cent (boys).

¹ After Baldwin and Wood, with permission.

associates in the latter are likely to be quite different from those of the former. This juxtaposition of individuals suggests the problem of correlation between ages, a topic treated later in the chapter.

Typical studies of growth. A vast amount of statistical material is available to demonstrate the facts of growth. These data have been obtained by first taking growth mea-

urements of large numbers of children, and then working out the weight-height-age tables.¹

A graphical picture of growth is shown in Figure 2.

In the past few years attempts have been made to secure consecutive measurements of the same children over a period of years, with the purpose of finding out

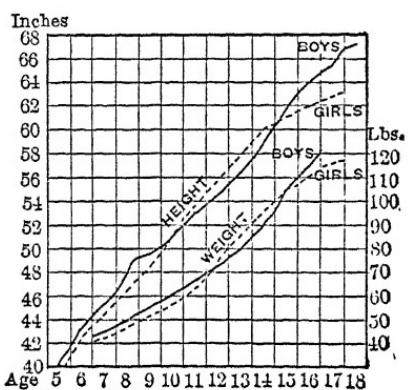


FIG. 2. GROWTH CURVES IN HEIGHT AND WEIGHT

From Terman L. M. *The Hygiene of the School Child*, p. 23. (After Boaz and Perrot.)

how children grow, rather than to standardize growth norms. Figure 3 shows the growth curves in height for boys and girls as determined by taking successive individual measurements.

Typical mental growth curves are shown in Figure 4.

General growth characteristics of the period. From the wealth of material furnished by Boaz, Smedley, Whipple, Baldwin, Johnson, and others appear certain more general growth characteristics of childhood, which apply in general

¹ See the accompanying table of Baldwin and Wood, Table I.

to each of the several ways in which growth may be measured.

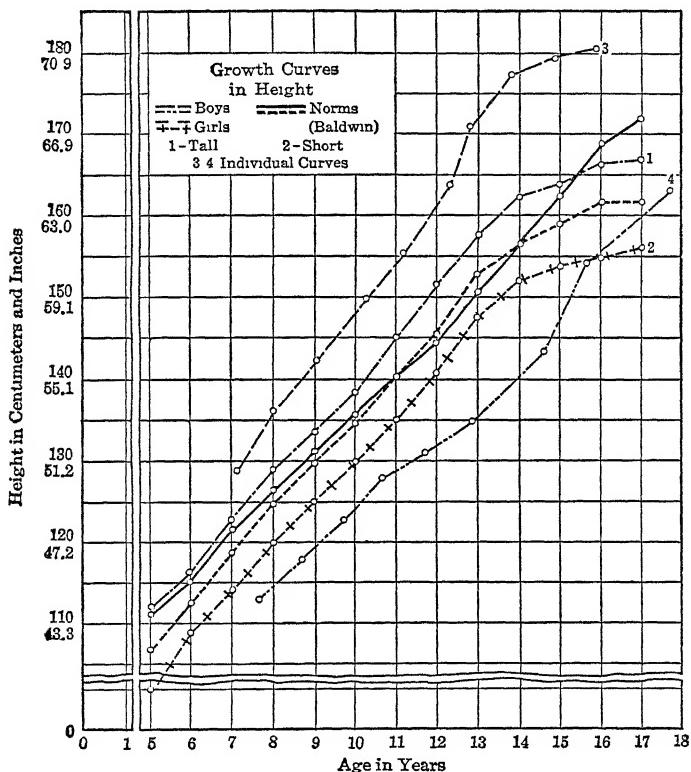


FIG. 3. GROWTH CURVES IN HEIGHT FOR BOYS AND GIRLS
From Pechstein and McGregor: *Psychology of the Junior High School Pupil*, p. 27.
(After Baldwin)

(a) *Rapidity.* Children are growing rapidly in every way. The rate is slower for physical growth in childhood than in the few years immediately following birth, and the rate of

increase is gradually diminishing, although growth momentum continues strong. Oscillations in growth rate can

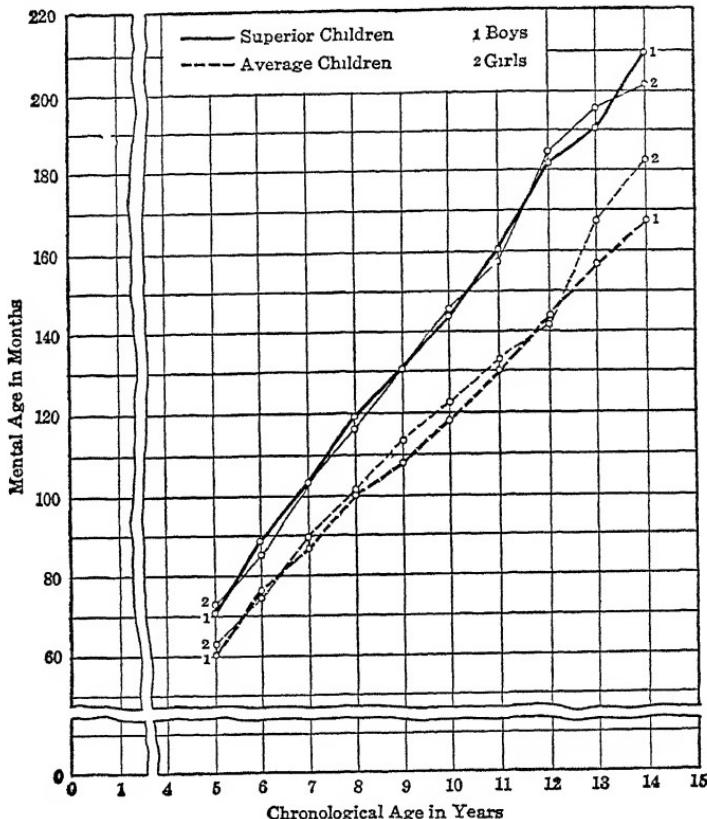


FIG. 4. MENTAL GROWTH CURVES OF NORMAL AND SUPERIOR CHILDREN
From Pechstein and McGregor. *Psychology of the Junior High School Pupil*, p. 87.

be pointed out, since the curves show a slight slowing-up of growth at or before school entrance, a slight acceleration at about seven years for girls and eight for boys, with a final

slowing-up immediately before puberty. These oscillations, which are not strikingly large, have doubtful significance.

(b) *Variability.* The variability of both sexes for any physical trait at any single chronological age is very marked; also, children may shift their position materially in two or more different series of measurements.

(c) *Regularity.* Children of both sexes maintain relative superiority or inferiority through this period of growth; tall children do not become short adolescents, neither does mental precocity or dullness in children at the beginning of school age seem to be radically changed throughout the years of growth.

(d) *Lack of coördination.* With rapidity of growth comes lack of coördination, caused by the unequal rate of growth of bones, muscles, and tendons. The emphasis, therefore, is laid upon coarse rather than fine physical adjustments of children in the earlier years of schooling.

(e) *Susceptibility.* As seems always true for periods of rapid growth, morbidity is high but mortality is low. Children's diseases are frequent, and fatigue comes easily; yet resistance and recuperation are strong.

Differences between growth of boys and girls. An inspection of the curves shows that, although from infancy boys excel girls in height and weight, girls grow faster than boys. They reach their pre-pubertal minimum of growth rate a year or two earlier than boys and their adolescent acceleration of growth from one and one half to two years earlier. In at least a fairly comparable way, the intellectual growth of girls proceeds at a faster rate than that of boys, especially when girls approach adolescence. The interesting researches

of Rotch, Baldwin, Dearborn, and others, in studying growth as revealed by the transformation of cartilaginous into osseous tissue in the carpal bones and epiphyses of the hand and wrist, show that girls at all ages are more advanced than boys in epiphyseal development. They are clearly maturing faster, and boys are constantly under the biological handicap of a slower rate of growth during the earlier years of school life.

Correlations between mental and physical growth. It is interesting and significant to question the relations between the several aspects of growth. Specifically, are anatomically and physiologically accelerated boys and girls likewise revealing consistently higher mental ages? Are physical retardates likely to be mentally backward as well? Does this relationship hold for school progress? Is there some single physical measure (for example, the anatomical index or carpal development) which, better than chronological age, will correlate with mental age?

Baldwin¹ comments as follows:

Dull children are shorter than precocious children of the same age, or average children. . . . Successful pupils are taller than unsuccessful, and the rate of growth is quicker than in the unsuccessful. . . . Dull children are lighter than precocious children. . . . The tall, heavy boys and girls, with good lung capacity are older physiologically, and further along in their stages toward mental maturity, as evidenced by school progress, than are the short, light boys and girls.

While it may seem natural that there is a probable relationship between physical and mental development, however measured, the student must ponder the degree of that relationship. Of course, it is still difficult to measure mental

¹ *The Child: His Nature and His Needs.* The Children's Foundation.

development accurately, and little agreement has been reached by experimenters regarding the selection of items measuring physiological and anatomical maturity. The eruption of the permanent teeth, skeletal development, the ossification process in the wrist, appearance of puberty, are selected in turn by some authorities as the best single factor to correlate with mental development. The recent work of Abernethy¹ showed certain significant correlations gathered under rigid experimental conditions for 120 girls six to twelve years of age.

Correlation of mental age with ossification ratio....	.016
Correlation of mental age with height.....	.34
Correlation of mental age with weight.....	.39
Correlation of mental age with dentition.....	.12

One must accept the conclusion that there are "low partial correlations between mental age and the commonly accepted indices of physiological and anatomical development."

The student should be warned against accepting any single measure of anatomical or physiological development as necessarily indicative of a parallel mental development. A single measure of growth, which is easily obtainable and which would suffice for other types of measures, has not yet been found. Not many years ago, chronological age was employed quite largely as the fundamental guide in school entrance, placement, and promotion. Mental age has recently come largely to function as the long-awaited guide. Apparently the more easily and accurately attained measures of height, weight, ossification ratio, number of per-

¹ Abernethy, Ethel M.: "Correlations in Physical and Mental Growth"; in *Journal of Educational Psychology*, October, 1925.

manent teeth, etc., will not set aside the need for securing a mental growth evaluation. *Growths, although always tending to correlate positively, do so to a rather insignificant degree.*

This generalization seems true even for the development of certain forms of social growth. Gates¹ has shown that, for children ranging from three to thirteen years of age, the correlation of their social perception with other mental and physical measurements was as follows: ossified area, .09; height, .30; mental age, .10; composite of teachers' estimates of scholastic and mental maturity combined with the Stanford-Binet Mental Age, .30. This authority believes that if these correlations are accurately determined, they represent only the usual correlation to be found between unrelated desirable traits, and "that the test employed shows that it is not merely another measure of chronological or mental age, but that it gauges, in some measure, traits more definitely social in character."

Periods of growth. Many interesting statements have been made in regard to the different stages of growth. Thus, one writer says that if an ordinary life lasts seventy-two years, we "may divide that life into six equal parts, calling the first childhood, the second adolescence, the third and fourth maturity, and the fifth and six senescence." Another, viewing growth as a process showing successive crests of development so marked as to warrant their being termed "metamorphoses," says that the "school life of the child presents three distinct phases: (1) the transition stage, from the age of six to the age of eight; (2) the formative stage,

¹ Gates, Georgina S.: "A Preliminary Study of a Test for Social Perception"; in *Journal of Educational Psychology*, October, 1925.

from eight to twelve; and (3) the adolescent stage, from twelve to eighteen."

Following this same accurate dissection, certain writers think of the period called early childhood (years one to six) as one in which the child lives in a world of play, with eager and impressionable senses; intensely imaginative, credulous and ready for suggestion; imitative; self-centered. Middle childhood (years six to eight) finds the child making an easy transition to more mature powers, with his physical growth rapid, with physical energies strong, especially for play activities. During this period senses are eager, apperception is active, imagination is becoming systematized; reason is awakening; yet the child's fundamental attitude toward life is definitely self-centered.

The student should avoid thinking of the process of human growth as disjointed and fragmentary as implied in the foregoing discussion. Growth is continuous, with no abrupt changes from stage to stage. The data presented in this chapter cannot but impress one with the continuity of development, irrespective of the angle from which growth may be viewed. It is doubtful, whether even with repeated measurements of a large number of the same children over a long period of time, we shall ever be able to mark off definite periods in normal growth. Even the special limit of the present book — that of the age of the kindergarten-primary child — presents no unique biological claims for special treatment. Rather, this special treatment is justified more as a methodology, than because of fundamental and essential differences in the development of children before the period of four to five years and immediately after the seven

to eight stage. The powers and capacities of the children have been present and developing all the time; variations from year to year in these capacities are quantitative rather than qualitative. Continuity is an important aspect of growth. With the exception of certain marked changes in adolescence and in occasional pathological conditions, growth continues without conspicuous interruption. The student should therefore avoid any attempt to limit stages of growth rigidly or to attribute to them too definite and exclusive characteristics, whether physical or psychological. Growth is conditioned by so many factors that generalization is dangerous.

Factors conditioning growth. The above paragraphs have suggested the fact that the growth of children is conditioned and frequently complicated by many factors. Terman and others classify such factors as (*a*) *internal or hereditary*, and (*b*) *external or accidental*. Hereditary factors include such influences as racial heredity, immediate ancestry, and sex. External factors include nutrition, acute or chronic disease, housing conditions, life, whether city or country, balance of work and recreation, exercise, temperature, season, air, and pre-natal influences. The latter group is relatively the more important for study, since, to a certain extent, the factors are controllable.

Space does not permit a detailed discussion of the highly important glandular system. By glands is meant the peculiar cellular groups of effectors or expressive organs (sharing herein with the skeletal and smooth muscles) which function primarily in the digestion of food, in the regulation and control of growth and metabolism, and in the elimination of

waste material from the body. The thyroids, suprarenals, pituitary, pineal, and sexual glands all play a significant rôle in growth during childhood, both directly in physical development and somewhat indirectly in the development of emotional behavior. A few quotations¹ from a more extended treatment must suffice to show the characteristic growth functions of certain glands:

Thyroid. The thyroid apparatus is situated on either side of the larynx and windpipe. The thyroid proper plays a tremendous part in the growth process. Experimentation has shown that the early removal, or spontaneous atrophy of the organ, results in a marked arrest of bodily growth, especially skeletal; in delayed development of the generative organs and the cortical cells of the cerebrum; in dry skin, thin hair, pale and puffy face, swollen abdomen, failure of the fontanelles to close, etc. This form of arrested growth is known as *cretinism*. In the thyroid lies the power to increase the excitability of the nerve cells. Furthermore, the thyroid must grow and function normally if the generative glands are to develop perfectly; otherwise, sexual infantilism generally results.

Suprarenals. The adrenals, in close connection with the kidneys, consist of two parts: (1) the cortex, probably functioning for the development of the sex organs; and (2) the adrenal medulla, the degeneration of which brings a remarkable lowering of the entire bodily tone (Addison's disease). Its removal always results fatally.

Pituitary. Continual artificial feeding of the pituitary secretions often produces very marked increases in height, cuts down excess fat, and results in general improvement in mental tone, etc. Too excessive activity of the anterior lobe of the pituitary body is productive of the gigantism sometimes seen in the pre-adolescent period, with the fairly typical enlargement of the facial bones and extremities in adults (acromegaly); too diminished secretion of the posterior lobe produces marked obesity and sexual arrest or infantilism.

¹ Pechstein, L. A., and McGregor, A. Laura: *Psychology of the Junior High School Pupil*, pp. 18-23. (Houghton Mifflin Company, 1924.)

Pineal. This small brain structure seems to operate in childhood to retard growth. Disturbance of this gland in childhood results in a premature development of the reproductive organs, increased skeletal growth, and precocity.

Sexual. The rapid growth phenomena of the sex apparatus are, of course, characteristic of adolescence. Castration or sexual infantilism results in an inability to respond to normal sex stimuli, and in a failure of the secondary sex characteristics to develop.

The above quotations not only show the influence of the glands in the growth process, but they indicate also, by references to pathological conditions, the basis of much of the unfavorable growth development seen in abnormal children.

Nutrition, the "process by which animals and plants take in and utilize food substances," bears a strong relation both to the physical growth and repair of the body, and also to mental development. The celebrated nutritional expert, Dr. William R. P. Emerson,¹ points out five chief causes of malnutrition which, as determined by thousands of cases, also induce mental unfitness. The removal of these causes tends to stimulate desirable mental changes. The causes, listed in the order of importance, are:

(1) *Physical defects*, or inflammatory infections, such as adenoids and diseased tonsils. Both of these conditions produce toxemias, which in turn cloud the mind, bring about early fatigue, prevent concentration, induce poor memory, restlessness, and unstable nervous reactions.

(2) *Lack of home control.* While this cause is essentially mental, its physical results are so conspicuous that we list it second in the causes of malnutrition.

¹ *The Child: His Nature and His Needs*, pp. 187-88. The Children's Foundation.

(3) *Overfatigue.* This cause is perhaps the one most often overlooked, although its effects are both physical and mental. The constantly increasing activities and interests of present-day life have added to the burden of the growing child, and when he begins to fall behind in school there is a tendency to increase the pressure on him by longer hours and home work. This often results in overfatigue.

(4) *Faulty food habits and improper food.* By upsetting the digestion and other bodily functions this cause affects the nervous system at its source, and is reflected in every form of mental activity.

(5) *Faulty health habits* include all those factors commonly included under the term "personal hygiene," without which the child cannot thrive either physically or mentally.

It would be interesting to determine the degree to which the basic nutritional standing of a child conditions his mental-moral-educational-social development, in comparison with the influence excited by the stimulating influences of the environment (playmates, books, teachers, etc.) on this same development. Both these factors are undoubtedly of tremendous importance, and only when both are functioning properly can fairly normal growth be expected.

QUESTIONS AND PROBLEMS

1. Become familiar with the function of the glands, then estimate whether, as is claimed, the "glands dominate personality."
2. What practical significance for education have correlation measures of physical and mental growth?
3. Select two children, boy and girl, of the same chronological age; estimate the several ages (anatomical, physiological, mental, etc.), and then generalize for sex differences.

THE CHILD AS A CHILD

4. Give concrete illustrations for the mental handicap of the boy referred to on page 52.
5. Why is prediction in the several fields of growth significant?
6. Contrast and evaluate the individual methods of studying child growth (Baldwin) with the more common group methods.
7. Does growth move in marked cycles?

ism and operate upon the definite, preferred, neural pathways which nature has supplied throughout the intricate nervous system.

The neural basis of behavior. A fundamental question here suggests itself: namely, by what sort of organization, or in what terms, is human behavior, child or adult, made possible? The answer is, in *neural* terms; that is, in actual physical conditions obtaining in the very intricate and complex nervous system.

At this point one may profitably review the facts of growth as regards the nervous system. The growth of the human offspring begins with the fertilization of the single maternal cell (ovum) by the masculine element (spermatozoa), and immediately thereafter the inconceivably rapid process of embryonic growth begins, as a result of which new cells are literally divided off, some to become muscle or fat cells, others to become nerve structure. Nerve cells grow from their primitive stage of undifferentiated neuroblasts into the 11,000 million (approximately) distinct, anatomically separate *neurones* which make up the human nervous system. The process of cellular growth is completed by the end of the embryonic period. Yet during this nine-month period, nature has mysteriously wrought upon the nervous structure certain very important modifications which (a) register the results of earlier racial experience, and (b) give the newly born child a neural inheritance calculated to be of tremendous value in the meeting of his biological problems. Three neural facts of more than academic interest should engage the attention of the student approaching the study of child behavior:

(a) The reflex arc is the unit of activity. The reflex represents in neural terms a simple arrangement of neurones, starting in a sense organ and ending in the muscular-response machinery. Hereby are provided the immediate, mechanical, and simple reactions to stimuli. Side by side with these simple arrangements occur the countless thousands of unorganized neural structures, these providing the almost unlimited amount of random, spontaneous activity, seen most frequently at work in the infant, but always present and definable in the adult.

(b) Complex groupings of simpler reflexes into proper operating order produce the complex hereditary modes of responding commonly called the emotional and instinctive. This grouping of many neuronic structures so that, in the presence of a certain stimulus, a very complex and widely diffused bodily (and at times mental) reaction results, is to be construed in terms of unlearned, inherited pathways through the nervous system, including both the cerebro-spinal and the autonomic.

(c) The habits, or acquired modes of response, represent the attainment or combining of neural pathways through the individual's own experience. The unorganized spontaneous reflexes previously mentioned represent the neural material out of which habits are to be formed, and the history of organizing these, into such perfect serial order as finally to rival the instinctive or unlearned type of response, constitutes the absorbing psychology and neurology of learning, discussed later in this chapter.

The doctrine of instinct. In discussing the doctrine of instinct, it is almost impossible not to offend the deep-seated

and sacred convictions of many kindergartners and teachers who, loyal to the educational psychology which they have been taught, base much of their educational practice upon the very orthodox doctrine of instinct. The writer, nevertheless, holds that many of the statements attributed to purely educational and social psychologists regarding instincts should be intelligently revised or the teaching profession will have an increasingly insecure scientific foundation.

There are almost as many diverse lists of instincts as there are psychologists to write upon the subject. It is interesting to note, however, that there is a gradual decrease in the number of instincts defined as "an inherited or innate psycho-physical disposition which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such action."¹ But there is little agreement on the subject, and one need not seek far for the explanation.

First, little detailed scientific work of a laboratory character has been done upon instincts before the process of learning or modification begins. No one can so accurately dissect any act of the child into its basic components as finally to justify a statement that, "Elements *a-m* in the activity are instinctive (unlearned) and *n-z* are habitual (learned)."

Second, authorities differ as to the scope they desire their

¹ McDougall, Wm.: *Social Psychology*, p. 30. (John W. Luce and Company, 1912.)

classified forms to assume. As was earlier pointed out in this chapter, there are literally millions of neuronic structures making up the nervous system, and these are arranged in complex fashion; the sense organs on the receptive, and the muscle-glands on the effector end of the stimulus-response mechanism. It is unlikely that the hundreds of thousands of definite reaction units which neurology informs us are functionally ready for operation *de initio* will ever be adequately enumerated. Consequently, the best the numerous writers on the subject can do is to make quite general groupings, each selecting and indicating such broad groups of tendencies as his own experience and predilection may suggest. Such procedure is bound to result in diverse classifications. Some will undoubtedly be very general descriptions of the behavior mechanisms, others quite detailed. All may be logically justified, but, nevertheless, hopelessly inaccurate, both psychologically and neurologically.

Third, and an outgrowth of the difficulty presented above, it is difficult to overcome the deeply entrenched view that the instincts are definite, specific entities, both in form and functioning. Our inadequate neurological insight has both helped and hindered us in this connection. For example, it is entirely accurate to think of such an instinct as "fear" as having a very definite neural basis, and of all situations involving the fear response as calling into play the appropriate neural mechanisms of the autonomic nervous system and the appropriate glands and muscles. But two errors creep in. (1) While the last link of the chain (the effector neurones of the autonomic) is definite and distinct from that of anger, love, etc., by no process of reasoning or observation can one

dissect the central portion of the neural mechanism of fear. The pursuit becomes even more confused when one tries to inspect the receptor structures and seek out the "fear" neurones, mediated through the optic, the auditory, the somatic tracts, one or all. (2) Even the quasi-definiteness of such a mechanism as the "fear" response becomes a dangerous basis for reasoning by analogy. Herein our neurology has put us at a disadvantage. Too many of us still, in our actual classroom practice, seem to reason as follows:

"Johnny has ($n-1$) definite neural mechanisms of an inherited character. I'll arrange the environment (that is, conduct the lesson) in such a way that Mechanism Number 3 (curiosity) comes rushing to control Johnny's activity. Then I'll turn the switch and allow Number 19 (imitation) to function. And finally, the neural structures of Number 15 (sociability, altruism, sympathy) will be given opportunity to unite and relate the activity of all the class members. When they have all mastered the work by means of these wonderful neural drives (mechanisms, carriers, servants) I'll permit Number 1 (play) to engage the remainder of their physical bodies and minds until I ring the bell at 10.45 o'clock." Facetious to the last degree, the example just given is, nevertheless, typical of a kind of faculty psychology which is still with us, wherein we erect mountains out of neurological molehills, and view as specific that which is at best only general and suggestive.

Fourth, there seems to exist a near-worship of instinct which results often in blinding an otherwise intelligent and really competent teacher. Individuals vary in their worship

of play, dramatization, construction, manipulation, or communication. For example, one reads, it is argued, because of the instinct for communication. Upon analysis, however, it is readily seen that the act of reading is devoid of purely instinctive elements. The detailed psychological studies of reading show the predominating influence of the learned factors — acquired eye movements and eye-voice span; the coördinating eye, inner speech, and tongue, making meaningful associations, employing a phonetic technique. In fact, the most that can possibly be said for instinct in this case of learning, or, for that matter, in most things which children or older folk do, is that it initiates the process of learning.

Attempt at classification. We turn now to familiar ground and present the refreshing classifications of instincts so well known to us. Angell's classification, which is a rather loosely descriptive, yet valuable, attempt at cataloguing, is as follows: fear, anger, shyness, curiosity, affection, sexual love, jealousy and envy, rivalry, sociability, sympathy, modesty, play, imitation, constructiveness, secretiveness, and acquisitiveness. McDougall would carry description still further and present a list of simple instinctive impulses and the parallel primary emotions. This parallel classification is already classic, and, in spite of the attacks made against it by the opponents of purposive psychology, it has probably done more to stimulate thought regarding the nature of instinctive-emotional behavior in general, and for the adolescent in particular, than any other classification yet proposed. McDougall maintains that we are to understand the complex activities of children, either in their somewhat native elemental or compounded state, or colored by habits,

which "are formed only in the service of the instincts," as the operations of the following:¹

SIMPLE INSTINCTS	PRIMARY EMOTIONS
Flight	Fear
Repulsion	Disgust
Curiosity	Wonder
Pugnacity	Anger
Self-abasement (subjection)	Subjection (negative self-feeling)
Self-assertion (self-display)	Elation (positive self-feeling)
Parental	Tenderness

Thorndike, in most noteworthy fashion, has described the reactions and then assigned the stimulus or situation calling forth the individual reaction, as follows:

I. Food-getting and protective responses — eating, reaching, grasping, and putting objects into the mouth; acquisition and possession; hunting; collecting and hoarding; avoidance and repulsion; rivalry and cooperation, habitation; response to confinement; migration and domesticity; fear; fighting; anger.

II. Responses to behavior of other human beings — motherly behavior; gregariousness; responses of attention to other human beings; attention getting; responses to approving and to scornful behavior; responses by approving and scornful behavior; mastering and submissive behavior; display; shyness; self-conscious behavior, sex behavior; secretiveness; rivalry; cooperation; suggestibility and opposition; envious and jealous behavior; greed; ownership; kindness; teasing, tormenting, and bullying, imitation.

III. Minor bodily movements and cerebral connections — vocalizations; visual exploration, manipulation; cleanliness; curiosity; multiform mental activities; multiform physical activities; play.

Gates² has continued the Thorndike tradition and has

¹ McDougall, W.: *Social Psychology*, p. 43. (John W. Luce and Company, Boston, 1912.)

² Gates, A : *Psychology for Students of Education*, p. 184. (The Macmillan Company, 1923.)

recently presented a very workable classification of instincts, grouped with reference to the types of stimuli which arouse them, as follows:

- (1) Instinctive responses to bodily or organic conditions.
- (2) Instinctive responses to objects and events in the environment.
- (3) Instinctive responses to the presence or activities of other human beings.

Comparing in detail the lists of instincts provided by fairly recent and standard textbooks, one finds that the writers agree on the following instincts: sex, love (maternal), sociability (herding), fear, fighting, and gregariousness. Representative authors on the subject agree substantially upon these also: rivalry, constructiveness, sympathy, secretiveness, curiosity, and self-assertion. Half the group agree in adding imitation, jealousy, and hunting, and some authorities add also play, repulsion, coöperation, submissiveness, shyness, modesty, cleanliness, and walking. Over a dozen additional forms are listed, making a total of more than three dozen instincts catalogued and described by such of our outstanding psychologists as employ the concept as basic for understanding human behavior. McDougall, the leader of this *purposive* school, differs widely from the protagonist of behaviorism, Watson, whose views will shortly be presented.

One notes gratefully in passing that certain much-coddled instincts are not included in some recent lists (notably play as a pure instinct); and thereby one is somewhat prepared for the radical position taken by the behaviorist school of psychology. Watson has undoubtedly performed a genuine

scientific service in making a beginning of studying certain types of instinctive behavior under the reasonably controlled conditions of the psychological laboratory. After confronting infants with a large range of situations alleged to elicit such responses as fear, anger, love, acquisition and possession, hunting, collecting and hoarding, etc., he reaches the conclusion that most of the asserted instincts, especially for post-infantile periods, are really consolidations of instinct and habit, with overwhelming emphasis upon the latter. Indeed, Watson's point of view gives so suggestive a slant upon the problems of learning later to be considered, and furnishes such a wholesome orientation in studying the typical educational problems of childhood, that the following liberal quotation¹ is deemed advisable as setting forth the rôle of instincts in man:

1. Man is supplied with a large number of directly adaptive, life-conserving activities which care for the intake, digestion, and dissemination of food products and for the elimination of waste and for procreation. These purely vegetative functions serve him as they serve animals lower than man and are possibly just as "perfect."

2. Man at birth and at varying periods thereafter is supplied with a series of protective attack-and-defense mechanisms, which while not nearly so perfect as in animals, nevertheless form a substantial repertoire of acts which needs only slight supplementation by habit before being of direct utility to the individual in his struggle for food, against enemies, etc. These are the protective and defense attitudes — the instinctive factors predominate.

3. Then follow the occupational tendencies (manipulation) supplemented by habit — seen earliest in collecting, hoarding, building with blocks, hammering and the use of tools generally, drawing, modeling in clay, etc. In the crude stage of these activities, the

¹ Watson, J. B.: *Psychology from the Standpoint of a Behaviorist*, pp. 266-68. (J. B. Lippincott Company, 1919.) Quoted by permission.

instinctive factors predominate and make clear the lines along which habits must follow. The instinctive factors are, however, soon lost sight of in the activities of the skilled workman, the artist, and the collector. These differing activities are seen at a very early age in children. Modern school methods, and especially the college, tend to break them down. One rarely finds a lad of twelve who cannot tell exactly what he wants to become, what he is fitted for, and why he is fitted for it. By the time he has had all the manipulative tendencies cultivated out of him in college, he can rarely tell what he is fitted for, and he drifts now into this work, now into that, depending upon his father's business, temporary openings, the traditions of the school, or the aspirations of his parents or other backers. We cannot help but feel that there are enough instinctive leanings present in early youth to properly shape any child's future activities. The problem is to find the method of discovering them, and then to shape the schools and colleges in such a way that these tendencies will be fostered, rather than lost. If they are kept central, any amount of culture may be built alongside of them without bringing about their submergence.¹

4. Individuality seems in some way to depend upon man's original tendencies, not upon the presence of the completed pattern type of instincts, since these do not exist in any large number, but apparently upon factors which, when taken singly, are difficult to detect, but which when taken together are most important. There is not much experimental evidence for this conclusion, but there is a great deal of common-sense data. We have in mind such differentiations as follows: Two men with the same and equal training, and approximately equal in ability in any skilled field, each capable of turning out fine work, will show individuality in workmanship, design, and methods of approaching their problems. Two equally skilled pitchers or catchers in baseball show this very well. Two men working upon lathes or modeling in clay, or making drawings of the same microscopic slide illustrate it. Apparently there are different fundamental part activities which have persisted in spite of instruction. We dignify these in the artist by the terms "touch," "technic," "individuality," etc. The fact that they have persisted seems to prove their original nature.

5. The principal rôle of all instinctive activity, neglecting the vegetative and procreative (the latter especially is not lacking in habit supplementation), is to initiate the process of learning. If an

object did not call out either a positive or a negative response, the formation of a habit with respect to that object would be impossible, unless we could take measures to condition a response.

A more rampant behaviorism is revealed in Dr. Watson's recent lectures. After laying the ghosts of capacity, talent, temperament, mental constitution, and characteristics as matters of inheritance, he frankly attacks instincts and emotions by studying infants in maternity hospitals. He properly finds habit factors present from the early days of the infant's life, and goes a long way toward writing the natural history of the development through learning of some, if not all, of the activities we have been wont to view as unlearned. A single quotation will suffice:¹

Take manipulation. It starts at 120 days, becomes smooth, sharp and facile at six months. It can be built up in a thousand ways, depending upon the time allowed for it, the toys the infant plays with, whether the infant is hurt by any of its toys, whether it is frightened by loud sounds often at the time it is handling its toys. To argue for a so-called "constructive building instinct" apart from early training factors is to leave the world of facts.

All of us, both psychologists and teachers of little children, have needed a Watson to challenge our loose ways of thinking and, without forcing us to give up our neurological foundations, to emerge from our discussion with several clarified points of view.

First, the infant has few definite instincts in the former sense, but he does possess a vast number of unorganized possibilities of reaction.

Second, the acts of a child have their own genetic history,

¹ Watson, J. B.: *Behaviorism*, p. 104. Reprinted by permission of W. W. Norton & Company, Inc.

depending quite largely upon the training and conditioning with which the child is furnished.

Third, good or bad activities of childhood or later life are rarely to be charged to unlearned tendencies of behavior; rather, they are the natural outgrowths of earlier learning which the child has experienced.

Fourth, the many separate acts of child behavior cannot be dissected into their two basic components of learned and unlearned, since these are complete functions in each one's daily life.

So much for the various and numerous instincts. One could continue indefinitely: describe, for instance, constructiveness; show how the collective tendency operates; analyze the social instincts into gregariousness, sympathy, social pressure, etc. Finally, one could discuss at length curiosity, imitation, and play. Or one might avoid this engaging discussion and take up the matter of classifying the instinctive behavior of children as individual, racial, and social.¹ In the interests of more scientific accuracy, we refrain, however, from going afield, and call attention again to the general thesis that, however many and important the instinctive tendencies may be, the influence of learning is of great educational significance.

QUESTIONS AND PROBLEMS

1. What do you understand by an *element* in response?
2. Reclassify the Thorndike list of instinctive tendencies under individualistic, sexual, and social.

¹ Cf. Pechstein and McGregor, *Psychology of the Junior High School Pupil*, pp. 61-65. (Houghton Mifflin Company, 1924.)

THE CHILD AS A CHILD

3. Select for special study a single child and decide, after careful observation, what his more prominent instinctive reactions are.
4. Is it accurate to view instincts as racial habits, from which intelligence has lapsed?
5. What relation exists between instinct and learning?
6. Is it psychologically justifiable to say that education begins where heredity stops and completes the work heredity has begun?
7. How may instinctive tendencies be given educational control or treatment?
8. Has purposive psychology seen its best days in educational practice?

CHAPTER VI

THE ELEMENT OF LEARNING

THE preceding chapters have emphasized that children grow, and that they respond to the many situations and stimuli by which they are confronted. We have just discussed the degree to which responses are made up of the unlearned, inherited methods of behavior. Attention is now called to those methods of behavior which represent the individual's own responsibility; in other words, the definitely acquired, in contrast with the definitely inherited, tendencies in response.

Neurological basis of the learned element. The child, together with other animals, learns largely because of two factors. First, he has unusual neural mechanisms which make possible modification of the inherited methods of response. Second, conditions of life surrounding him are such as to make individual modification necessary.

As one views life forms in ascending order, one comes upon the interesting point at which certain organisms show a rigidity in their nervous structure. As a result of this rigidity, these organisms must live in a highly protected physical environment and their life needs must be coped with by the rigid group of inherited ways of response which are provided them. When radical changes take place in their environment, they prove unable to adapt themselves, and die. In contrast, we see that the main evolutionary process produces higher and higher species, which have increasing powers of modifying their primitive pattern of behavior.

In other words, they have a plasticity of nervous structure, as a result of which learning of new responses becomes possible.

Several neurological facts, which have striking significance for human learning, stand out:

First, the human has attained the tremendously complex neural area of the third level order; that is, the cerebral hemispheres with the highly intricate neural cortical surface. This cortex is literally a complicated reservoir made up of millions of intricate neural structures, none of which is in immediate connection with the sense organs. Rather, all of these are so superimposed upon the lower nervous centers as to constitute a special area for supervising and directing the lower. They serve as neurological bodies of reference when the more primitive sub-cortical neural areas are unable to meet the demands of the situation. They provide the neural basis for those peculiar modifications and retentions which, so far as we can tell, constitute the physical basis for the learning process. In fact, if one were required to point out the most striking single fact which makes the development of the human possible, and which places him in marked contrast to the lower animals, the answer would be the fact that the human has attained a higher type of neural equipment. This fact has unusual significance both with reference to the modification by way of learning through experience, and the retention of these modifications.

Second, as the preceding chapter has emphasized, three basic neural facts are considered fundamental in the discussion of response. It was stated that learning — that is, acquiring methods of response — represents the attainment

or connecting of neural pathways as a result of the learner's own experience. Significant in this connection is the fact that the child is born into the world with literally millions of neural arcs carefully grouped in proper patterns in his nervous system, some of which are already properly integrated for functioning, and most of which have potentiality for becoming properly integrated through the activities that they may, by accident or plan, be obliged to carry on. It is a significant fact for learning that nature has established both an unlimited mass of neural mechanisms and the ability for these to become properly connected and integrated.

Third, in contrast with the lower animals, whose nervous system is rigid, the child is born into the world so sophisticated and specialized that his environment is far from being protected. True, he is shielded by loving parents during the earlier years of his life, that period of prolonged infancy which has, of course, tremendous educational significance. But he is surrounded by all sorts of strange conditions, toward which he must learn to respond. Street cars and automobiles in the streets are to be dodged, peculiar written and printed scrawls must be read, a technique of writing must be developed, a method of earning a living in a competitive social order must be achieved. Were conditions of life such that all the creature needs of existence could be met by the primitive, instinctive ways of response, learned modifications of behavior would not be necessary, and, therefore, would presumably not arise. But the child is, by way of summary, so created that learning becomes possible neurally, and necessary psychologically.

Basic material for learning. The neural picture presented above is sufficiently vivid to emphasize the fact that learning connotes the attainment or uniting of new neural pathways. Learning, especially from the neural point of view, is seen to rest quite fundamentally upon the random, spontaneous characteristics of neural action. The key to learning is found in terms of the overflow of excess neural energies through the complex neural centers, together with the resultant random, spontaneous activity of the full musculature of the body. This random, spontaneous activity is seen at its maximum with the well-nourished infant. His organic processes are producing energy quite beyond that required for carrying on the types of response (automatic, reflexive, and instinctive) with which he is endowed. This excess neural energy must escape through the millions of escape-mechanisms provided. Hence we see the vast amount of apparently meaningless motor response given by healthy infants. This motor "stock-in-trade" is, of course, not useless — it represents the child securing practice in his entire stock of basic raw materials, out of which he will later, by proper serial connecting, organize the learned ways of response.

The reader at this point should consider typical complex learnings of children and trace these back to the primitive, unorganized, spontaneous reflexes out of which the final pattern is carved. By way of illustration, organization of simpler reflex responses is suggested by the infant's learning to talk, to control his finger and arm movements in writing, to trip a simple folk dance in the kindergarten, and later to perform gymnastic stunts, run a typewriter, drive a car, or manipulate apparatus in a scientific laboratory.

These illustrations emphasize learning primarily upon the motor level. The play of ideas in learning to read, to spell the letters of a word in proper serial order, in memorizing a poem, in thinking one's way through a difficult problem in geometry or history, emphasizes the organization of simpler reflexes, primarily upon the ideational level. Hereafter the reader is urged to view the process of learning as the reorganization, into proper serial form, of those simpler reflex ways of reacting, long since existing both on the motor and ideational level. These are awaiting only organization (learning) to be transferred from the random and relatively useless, into the organized, controlled, and useful. By definition, therefore, learning is the *modification of behavior made by the individual when he is forced to face situations for which he has no instinctive or previously learned response.*

Illustrations of the learning process. An interesting question may now be asked — Does not all learning, infantile or adult, motor or ideational, animal or human, follow the same definite, orderly pattern? The analysis of typical learning activities of children will throw light on this question. Consider the following examples:

(a) *Primitive reaching-reaction of the infant.* Any parent remembers, when the first-born child was a few months of age, the day that father came home early from the office. With considerable paternal pride, the father called mother and nurse into the nursery, there to exhibit the powers of the young offspring. The proud father noisily unwrapped a recent purchase from the Ten-Cent Store and displayed a gaudy and loud-sounding rattle, a few inches above the chest of the young hopeful. Of course, he expected that the

young prodigy would calmly reach for the rattle with his right hand and manifest all the earmarks of new ownership. Yet the actual picture was quite disappointing. In response to the moving object and the resultant noise, the infant fixed his gaze, became somewhat rigid, then suddenly arms and legs, tongue, lips, and other facial muscles, even those of the diaphragm and the internal organs which mediate crying, probably, were called into play. The child became a mass of random movements, these movements being coördinated only to the degree that the arms or the limbs, etc., are originally geared to move simultaneously. In this mass of wiggling, flinging of arms, crying or cooing lies the basis for the successful reaching reaction. If the right hand bumps accidentally into this strange object in space, the grasping reflex of the fingers takes place, and in as unconscious fashion, the right arm contracts and the rattle is brought to the mouth. The successful activity has been accidentally singled out of the entire response, and it alone has set up certain changed sensory consequences which give it some special rating in the total situation. Then, of course, the father takes the rattle from the child and, after the resultant crying has ceased and order is restored, the learning situation is again staged. Again appears the random outgoing of energy into thousands of motor channels and again appears the accidental bumping into the rattle and bringing it to the mouth. In due order, and after many repetitions, the proper reaching reaction alone becomes selected and the remaining movements of the original response are inhibited.

(b) *Learning a simple dance.* A few days ago a little boy

four and a half years old had his attention directed to the gyrations of his sixteen-year-old sister in performing the Charleston dance. After observing the dance for some minutes, and upon repeated urging from his father, the child undertook to perform a simple first step carefully set by his sister. Arms, mouth, and legs started simultaneously at the subjectively given word "go!" The feet tripped, the lad fell to the floor and, once regaining his equilibrium, he rushed from the room in embarrassment and disgrace. If the little limb muscles are brought under such control as to do the simple Charleston step, it will be because of the selection of certain movements in proper serial order from a mass of movements already present and functioning.

(c) *A child and his typewriter.* An eight-year-old boy of my acquaintance was given a typewriter. He had, of course, long since learned for what use a typewriter was intended and had seen his father and others manipulate the keys. The father started the learning properly by giving the child what he thought were entirely definite instructions regarding putting the paper through the roller, using the thumb on the space bar, and making certain fingers reach for certain keys. When the child was given liberty to start, attempting of course to write his own name, the expected as viewed by the psychological father happened. Several fingers sought for the initial letter, no fingers reached to press the capital key, the mouth opened, brows were wrinkled, one foot was drawn up, and finally two keys were pressed simultaneously. In due time, sorting and order will come. No amount of initial explanation and simplification would save the lad from going through the learning pains so

typical of this and all other complex learning exercises. The initial stages of teaching first-grade children to write are, of course, typical of the description just given for this eight-year-old child in learning to run the typewriter.

(d) *A problem in arithmetic.* The same eight-year-old boy comes to his father in the evening with the following problem — all to be solved, written out, and handed in before the next day's lesson — How many hedge plants are required for planting 450 feet of hedge, if one plant is placed in each three feet? Confronting an unqualified refusal of paternal help, the boy is thrown on his own resources. He may whine, rail against having to do the work; he may plan to ask his mother or older sister to do it for him; he may put it off until to-morrow hoping that some other pupil will let him copy his own solution; he may, under paternal gaze, try to solve it. Specifically, he is advised by his father to read it aloud and, because of careless and inaccurate reading, he is forced to re-read it a second and a third time. Still under paternal restraint, he narrows the field in an attempt to state the conditions of the problem in his own words. Finally, after some prompting, suggesting, and upbraiding, he seems to show a knowledge of what is desired. Then what shall he do? He knows he may add, subtract, multiply, or divide; he undertakes each of the first three of these operations in turn before the father stops him in disgust. Then the father, with wisdom of years, has the lad take up the blocks of his younger brother and the yardstick, ever present in that particular family. Attention is turned to constructing the actual hedgerow. A block is placed at each measured three-foot length. After an eighteen-foot course is

covered across the floor, the boy suddenly exclaims, "If you have to put a block at each three feet, you will have as many to put as three feet will 'go into' 450. That's division." True, it took nearly half an hour for him to stumble upon the successful way of meeting the situation. His stumbling was in the field of ideas rather than on the motor level. Such is thinking — *trial and error learning in the field of ideas*. An unlimited number of other illustrations, both simple and complex, motor or ideational as to their level, for children or adults, will suggest themselves to the reader.

Stages in learning. We can now formulate an analysis of the logical and, in general, psychological and chronological stages involved in the typical acts of learning described above:

(1) *Random, excess activity.* This stage shows the typical breakdown in the control of a situation, and is characterized by random spontaneous movements and ideas not necessarily or immediately related to the solution of the situation confronting the learner.

(2) *Directed activity.* This type suggests the fixation of attention upon that portion of the random activity in which success will probably lie. For the case of the adolescent the problem of directing activity into the zone of probable success is, of course, relatively simple, since his attention may be quite easily controlled and directed.

(3) *Adaptive activity.* This stage brings the successful form of reaction, the one that proves adaptive to the needs of the situation. It is interesting to note, whether the learning is on the motor or ideational level, the learner seems

to stumble upon the adaptive activity, and may properly be said to have learned by "trial and error." Certainly he is often surprised when, out of a vast amount of random activity, he discovers the particular form meeting the needs of the situation.

(4) *Repetitive activity.* Herein opportunity is provided for fixing the adaptive responses in proper serial order, and for eliminating not only the unsuccessful ones, but also those interfering with the speed and accuracy of the proper adjustment.

(5) *Coordinated activity.* This final stage suggests the finished product of learning wherein, upon the proper situation presenting itself, the learned response is made with a perfectibility rivaling any unlearned way of reacting.

Laws of learning. From the above illustrations, some predominantly ideational and others motor in character, the following basic statements regarding learning may be made:

(1) Learning is primarily of the "trial and error" type, and approximates the five-fold analysis just set forth.

(2) The function of the teacher is to prepare the situation for learning and, at times, to direct the child's attention into that field where he, himself, will discover the adaptive response.

(3) Random spontaneous activity, either in movements or ideas, is present in all complex learning, and the successful response comes only after the process of try, try again.

(4) When we speak of the laws of learning, we are referring to three basic mechanical principles — recency, frequency, and intensity. The operation of these principles is clearly

shown in any complex learning exercise. The successful, adaptive response always occurs in every successful trial of the activity, since it, and it alone, ends the series. This necessity of occurrence does not characterize invariably any other single unsuccessful activity, when a new learning trial is begun. The successful act is always the most recent. Finally, the successful response sets up a train of changed sensory consequences which, automatically associating in the temporal sequence with the act itself, give the successful act an intensity (a group of consequences) denied to the other unsuccessful elements in the total response situation. These three so-called laws are probably sufficient to describe any act of learning, both for the fixation in proper order of the successful responses and the elimination of those unsuccessful.

(5) Many acts of learning seem to be of a relatively simple, associative character as, for example, the child learning that c-a-t represents the same thing as the printed picture of a cat, the auditory word itself, and the actual physical object. Some psychologists view the learning process as adding on from time to time these simple associative bonds or connections. It is interesting to point out, however, that these specific learning bonds are often merely incidental to a larger learning situation. Furthermore, these simple acts of learning never represent more than a very narrow aspect of the total learning situation. In fact, learning the meaning of the simple stimulus word "cat" involves many wide concomitants which will be discussed later. The student is urged not to look upon even these simple illustrations of the learning process as dissociable from a highly complex field,

involving to a degree probably all of the five stages previously illustrated.

Frequent analyses have been made of the principles relating to the engendering of the specific things which children must learn. Such is the deliverance of modern experimental educational psychology. The essence of the entire process of learning (habit formation) may well be expressed in three words — repetition with attention. The following list of principles relating to the engendering of specific acts has recently been prepared to summarize, in a helpful and accurate way, many of the experimental results of investigations of learning processes, as well as to emphasize certain points of basic educational theory:

1. The teacher should analyze each unit of instruction to determine the possibilities and needs for engendering specific habits.
2. The teacher should not ask the learner to acquire a habit until near the time for its use.
3. When a group or succession of related habits is to be formed, the teacher should assign the learning exercises designed to lead to their acquisition in a psychological rather than in a logical order. (This suggestion is a special application of principle 2.)
4. The teacher should endeavor to make clear to the learner just what response is to be habituated.
5. The teacher should endeavor to arouse in the learner a sufficiently strong desire to form the particular habit or to attain the particular skill so that his initial attack will be accompanied by a high degree of interest and enthusiasm.
6. The teacher should employ appropriate procedures and devices so that the learner will maintain an attitude of interest and attention throughout the process of repetition.
7. The first step in the process of engendering a specific habit usually should be a demonstration by the teacher, accompanied by an explanation. (Principles 7, 8, 9, and 10 are especially applicable to the formation of motor habits.)

8. In most cases of motor skill there are certain better methods, but not necessarily one best method.
9. Trial and accidental success play a large part in motor learning, but frequently the teacher may shorten the learning process by suggesting "better methods."
10. In general, the teacher should seek to focus the learner's attention upon the objective result of movements rather than upon the movements themselves. In cases where it seems advisable for the learner to observe his movements, his attention should be directed to those to be performed rather than to those to be avoided.
11. The teacher should instruct the pupil to memorize by wholes rather than by parts.¹ (Principles 10 and 11 inclusive are particularly applicable to the formation of habits in which the mental element predominates.)
12. The teacher should instruct the learner to use recall in memorizing. However, he should not attempt recall until the learning has advanced to such a stage that correct responses can be given.
13. The teacher should direct the learner's attention to associations among the facts that he is asked to learn.
14. Sometimes it is appropriate for the teacher to suggest mnemonic devices to the learner.
15. In conveying to the learner the response that he is to make, the teacher should not limit his appeal to a single sense. Different senses should be utilized at different times.
16. The teacher should endeavor to engender habits in the way in which they will be used.
17. The teacher should avoid engendering superfluous habits. If such are acquired, they should be eliminated as soon as possible.
18. The teacher should insist upon absolute accuracy in practice. Accuracy first, speed afterwards.
19. The teacher should be alert in detecting errors in the learner's performance and persistent in bringing such errors to the learner's attention.

¹ See Pechstein, L. A.: "Whole vs Part Methods in Motor Learning"; in *Psychological Review*, Monograph Supplement no 99. It may be better to say that, the more complex the problem, the more advisable not to learn it by wholes but by some modified form of the part method.

20. In the case of a series of responses to be automatized, the teacher should be careful to include each member of the series in the exercises for practice.
21. The teacher should provide more repetitions for those responses that afford the most difficulty.
22. The teacher should constantly bear in mind that pleasant feelings facilitate progress in learning.
23. The teacher should never drill the few at the expense of the many.
24. The teacher should provide for a proper distribution of practice.
25. The teacher should provide exercises for continuing the learning to the required degree of efficiency.¹

The learned in relation to the unlearned. From the time that educational psychology reached even the stage of its swaddling clothes, the importance of instinct in relation to learning has been emphasized. The unfortunate point of emphasis has been upon making the unfolding and operating of the instinct largely a camouflage for actual learning itself. Many kindergartners and teachers in the higher grades have talked rather dogmatically regarding instincts of communication, construction, and dramatization. The careless reader of the writings of the last few years concludes that definite skill in school, such as reading, writing, or arithmetical ability, is the expression of instinctive ways of responding. The picture is obviously overdrawn. The writer believes the following statement sufficiently accurate for demonstrating the relation between the unlearned instinctive tendencies of behavior and the supplementary process of learning.

¹ Reagan, George W.: *Principles Relating to the Engendering of Specific Habits*. University of Illinois Bulletin, October 5, 1925. Quoted by permission.

Learning takes place when old ways of meeting situations fail. The breakdown of instincts provides the basic attitude of need of adjustment provocative of learning, hence the instinctive way of responding when thwarted, furnishes the incentive to learning, and provides the energy for the learning attack. In this sense it is accurate to state that learning is developed in the service of the instincts. One must be on his guard, however, to see that the learning itself involves a multiplicity of details looming far larger in importance than does the basic underlying rôle of the instinct itself. For example, it is no doubt true that children have a tendency to communicate and hence, that learning to read may be viewed as a general phase of the basic communicative instinct. Of much more importance, however, is the fact that, when one analyzes the real psychology of learning to read, he sees that this is written in terms of establishing certain types of eye movements and pauses, bringing certain imagery to associate with external perceptual symbols, working out articulations between recognition, inner speech, eye-voice span, the speech musculature, etc. One knows almost nothing about a child's learning to read, so far as an analysis of the instinct basic to reading is concerned. The instinctive factors involved in learning exercises of any complexity are few; the learned factors are of overwhelming number and significance.

Learning and thwarting tendencies. The above paragraph emphasizes the relation of learning to individual instinct, interest, problem, and individual need. Modern educators have long since come to consider subject-matter as units of racial experience, discovered or created under the behest of breakdown and need. Little children adjust themselves with great difficulty to the thwarting of their more basic instinctive wants. They, like adults when thwarted, have to effect an escape. Rarely does a child suffer a mental break under the strain, as is occasionally done by the adult. Rather, the child early comes to learn many subtle ways of indirectly exercising or adjusting to a

thwarted tendency. These methods constitute rather general learnings of profound significance in individual behavior, a fact which the analytical treatment of behavior cases of young children is now making clear.

The following are rather typical, and entirely normal, ways which children have of adjusting to situations in which they find their more basic ways of responding blocked:

(1) *Introversion*, wherein the individual meets his problem imaginatively instead of actually.

(2) *Rationalization*, wherein one may attempt to justify a certain act even though he realizes its irrationality, to project the responsibility for the thwarting upon some innocent party, or even to persuade himself that the thwarted activity was really not desirable.

(3) *Prejudice*, wherein one refuses to entertain any evidence likely to unsettle certain very basic desires.

(4) *Compensation*, wherein a substituted act may take the place of the one thwarted.

(5) *Dissociation or repression* of desires which cannot be faced either directly or indirectly.

Illustrations readily suggest themselves. By introversion, the kindergartner becomes, in her own thinking, the queen of the fairies, or perchance the highly inflamed Jack the Giant-Killer; the second-grader comes to rationalize his bad schoolroom contact in terms of the teacher's unfairness to him, or to explain his poor grade in number work as due to the teacher's inability to explain details; to argue vociferously that no child from the near-by parochial school can be worthy of association or can begin to put on a Tom Thumb wedding (an actual yet horrible first-grade project!) as well

as his own grade; to carry flowers, apples, and other favors to the teacher instead of giving intellectual application to the learning tasks she sets for him, or, finally, to assume a brag-gadocio and roughness of manner to keep one's boyish playmates from believing him a sissy or that he likes to play with girls.

Much of the above is suggestive of modern behavioristic psychology in which Watson, who has been quoted earlier in this book, minimizes the specific rôle played by instincts in learning. Somewhat to his own satisfaction he has accounted once and for all for inheritance, for aptitudes, for mental characteristics, for special abilities, instincts, and temperament. He will argue that the only valid picture of child development is to be drawn in terms of learning; that is, in conditioning responses to new situations and stimuli. He will insist that this conditioning proceeds with enormous rapidity from the time of birth on, and probably even before birth. He will hold that this conditioning can be built up in almost any way desired, and whatever children become is far more a result of the way their responses have been conditioned through learnings than of inherited conditions. The detail of conditioning responses, and the significance of the conditioned reflex as the unit of learning, will be brought out in a discussion of child emotions. In order that the reader may be prepared for the stimulating logic of the conditioned reflex, the following paragraphs are quoted:¹

Wesley Smith was thrown into an environment in life that fairly reeked with economic, political and social questions. His attach-

¹ Watson, J. B.: *Behaviorism*, pp. 78-79. Reprinted by permission of W. W. Norton & Company Inc.

ment for his father was strong. The path he took was a very natural one. He went into that life for the same reason that your son becomes a lawyer, a doctor, or a politician. If the father is a shoemaker, a saloonkeeper, or a street cleaner — or is engaged in any other socially unrecognized occupation, the son does not follow so easily in the father's footsteps, but that is another story. Why did Wesley Smith succeed in reaching eminence when so many sons who had famous fathers failed to attain equal eminence? Was it because this particular son inherited his father's talent? There may be a thousand reasons, not one of which lends any color to the view that Wesley Smith inherited the "talent" of his father. Suppose John Smith had had three sons who by hypothesis all had bodies so made up anatomically and physiologically that each could put on the same organization (habits) as the other two. Suppose further that all three began to work upon economics at the age of six months. (Note: And by this statement we do not mean that their genetic constitution is identical.) One is beloved by his father. He followed in his father's footsteps and due to his father's tutorship this son overtook and finally surpassed his father. Two years after the birth of Wesley, the second son was born, but the father was taken up with the elder son. The second son was beloved by the mother who now got less and less of her husband's time, so she devoted her time to the second son. The second son could not follow so closely in the footsteps of his father; he was influenced naturally by what his mother was doing. He early gave up his economic studies, entered society and ultimately became a "lounge lizard." The third son, born two years later, was unwanted. The father was taken up with the eldest son, the mother with the second son. The third son was also put to work upon economics, but receiving little parental care, he drifted daily towards the servants' quarters. An unscrupulous maid had taught him to masturbate at three. At twelve the chauffeur made a homosexual of him. Later falling in with neighborhood thieves he became a pick-pocket, then a stool-pigeon, and finally a drug fiend. He died of paresis in an insane asylum. There was nothing wrong with the heredity of any one of these sons. All by hypothesis had equal chances at birth. All could have been the fathers of fine, healthy sons if their respective wives had been of good stock (except possibly the third son *after* he contracted syphilis).

You will probably say that I am flying in the face of the known

facts of eugenics and experimental evolution — that the geneticists have proven that many of the behavior characteristics of the parents are handed down to the offspring — they will cite mathematical ability, musical ability, and many, many other types. My reply is that the geneticists are working under the banner of the old "faculty" psychology. One need not give very much weight to any of their present conclusions. Before the lecture is over I hope to show you that there are no "faculties" and no stereotyped patterns of behavior which deserve the name of either "talent" or "instinct."

What have children learned? By the time the child reaches the kindergarten-primary period, his learning powers have brought in a tremendous supply of materials. We can, of course, speak in the customary language of the types of knowledge, of skill, and of ideals which represent our educational method of classifying learnings. In fact, we generally have underestimated what the child has learned. He has already learned to speak with remarkable fluency a foreign language, and this one of the hardest. The fact that he has learned this language when he is at the boyhood level of intelligence, in contrast with the college mind wrestling with Latin or German, is a remarkable feat. He has learned all the practical mechanics involved in locomotion, throwing, etc., and has reduced an external world to a semblance of order. Furthermore, he has learned all sorts of valuable readjustments to frowns, smiles, and other physically expressed attitudes of parents, brothers and sisters, and the passing stranger. It seems somewhat unfortunate that, through kindergarten and in later handling of the child, we tend to slow up the activity of the learning process. Perhaps this fault must be paid for by education in cramming the learning process into those fields which society in its

wisdom defines as proper for the purposes of formal education.

An inquiry into the contents of children's minds when they enter school furnishes valuable information regarding what they have learned. The monumental study of G. Stanley Hall several decades ago, in which was made a question-and-answer survey of the ideas kindergarten children possess, shows that there is here next to nothing of pedagogical value the knowledge of which it is safe to assume at the outset of school life. Hall emphasized a point which we now see so clearly — since concreteness of experience is an essential preliminary for the reading process — that it becomes a major function of the kindergarten to furnish, strengthen, and render uniform the ideas which children have, in order that the teacher of reading in the first grade may have a known body of experience to build upon.

The importance of out-of-school agencies for learning cannot be underestimated, both for young children and for those found further along in the grades. A recent survey¹ of the content of the minds of children of sixth-grade attainment furnishes interesting and alarming data. Regarding a selected list of questions pertaining to certain items of civic, social, and economic life, hundreds of sixth-grade children indicated their knowledge. Exactly the same uncertainty, inaccuracy, yet at times amazing accuracy, was shown by these upper-grade children as was found by youngsters upon school entrance. It was significant, how-

¹ Burton, W. H.: "Nature and Amount of Civic Information Possessed by Children about to Enter the Junior High School"; in *Kentucky Journal of Education* (1925).

ever, that regardless of social or economic status, race or nationality, children have certain rather common elements in their fund of information. In the order of their rank, sixth-grade children were shown to possess information regarding the bootlegger, divorce, the sheriff, juvenile court, bail, jury, etc. Those items of outstanding information just mentioned are strangely reminiscent of the headlines and the movies. Of course, our efforts to teach citizenship, as well as reading, history, and other grade subjects, are absolutely qualified by the information already in the minds of pupils. It is significant for teachers, even of little children, to realize that causes of differences in information between races or nationalities are almost never due to race or nationality, but to economic or social status; that the best-known and least-known facts are the same for all groups, white or colored, Jew or Christian; that the newspapers and the movies are the chief sources of information for civic, social, and economic facts, the home and school not counting for very much in incorporating these facts; that children pick up many facts, the good along with the bad, which we could teach effectively in school but do not; that even with little children we need to begin the proper development of attitudes and information regarding civic, social, and economic situations.

Summary. By the time the little child enters school, then, he has at his command a large stock of reacting mechanisms — reflexive, instinctive, and habitual; his stock of learning, while conditioned by or developed in service of the general instinctive tendencies, follows laws and directions quite non-instinctive in character; the child has at-

tained tremendous powers of learning, and can be conditioned to respond to any desired situation in practically any determined way; and all of his responses are the resultant of the only two forces which can act, namely, the unlearned and the learned tendencies, with overwhelming emphasis to be placed on the latter.

QUESTIONS AND PROBLEMS

1. In guiding the learning activity of a child, which of the five stages in learning gives the teacher the greater opportunity to aid the learner?
2. Furnish original illustrations for specific acts of childish learnings, and analyze them into stages. Were these stages psychologically as well as logically distinct?
3. Is the capacity to learn innate or acquired?
4. How real are the facts of thwarted adjustment as seen in young children? How are children accustomed to treat their thwarted desires?
5. What are laws of learning — matters of description, or causal factors at work?
6. Illustrate in an original manner each of the twenty-five principles relating to the engendering of specific habits
7. Do you believe that the behavioristic emphasis upon learning is too strong? Cite facts to prove the position you take.

CHAPTER VII

THE INTELLECTUAL ELEMENT

THE two preceding chapters have emphasized portrayal of the child actively engaged in responding to the various stimuli and situations confronting him. In the effort to narrow our field of discussion, we shall now treat the mental aspects of childish organization, showing the rôles played by three basic elements — the intellectual, the emotional, and the volitional. One feels from now on that he is a more orthodox psychologist than when he was indulging in the behavioristic latitude of the earlier chapters, for, of course, it has been customary throughout countless generations to discuss mental life under the three basic systematic divisions just mentioned.

The reader should understand that, in agreeing to discuss the mental operations of the child under the triple heading, he must not think of these as three separate aspects of mental life, either in structure or functioning. The triple classification proposed offers logical values, and gives opportunity for including in a clear and classified way the outstanding facts of the mentality of childhood, but no one should think that the three elements operate distinctly, or even chronologically. Rather, mind is unified, and each separate moment of the mental life undoubtedly reveals each of the three elements in operation. Our system of treatment, then, has logical but not rigidly psychological justification.

General psychology of knowing. By way of distinction,

we shall think of the knowledge processes of mind as constituting the "whats" of consciousness. Roughly synonymous terms are *knowing*, *cognition*, or *intelligence*. The sum total of knowledge processes includes all the mental materials and functions commonly grouped under such terms as *sensation* and *perception* — these referring to the gathering of experiences from the world objective to the individual; *memory*, *association*, *imagination* — these suggesting the conscious restatement of earlier mental experiences, either in their relatively exact or modified form; finally, the group of logical processes — *conception*, *judgment*, and *reasoning* — suggesting the ordering, relating, evaluating, and readjusting functions of mind. All of these functions, together with the specific mental data secured through their operations, constitute a related whole made up of the materials of experience. Presumably these experiences are retained in some definite neural traces in the human cortex of the brain. As mental experiences, they are to be inspected quite in contradistinction to the affective or feeling tone generally accompanying them. Furthermore, we shall distinguish them radically from the activity or volitional aspects so characteristic as an accompaniment of both the knowledge and the effective processes.

Development of the knowledge functions. The question may well be raised regarding the general growth history of the knowledge processes. In some circles it has been customary to designate the earlier years of child life as those when sensation and perception were practically swamping consciousness; in due order came the powers of mental representation, both of the reproductive memory and the

productive imaginative type; finally, and at the quite later period, was alleged to develop the higher rational processes previously listed. All this suggests a picture of periodic development for mind, in keeping with which adolescence was held to be a period for the crowning development of its rational powers. On logical grounds it can be shown that the logical process of judgment is just as primitive as sensation; on the psychological grounds of both mental and educational measurement, it has been shown that all types of mental processes appear early in the life of the child and develop concomitantly. For example, reasoning is not a function of mind delayed for a late appearance, but rather reasoning, viewed largely as trial and error in the field of ideas, operates from almost the earliest individually directed activities even of pre-school children. In keeping with the concomitant theory accepted by the writer, year to year differences in the intellectual powers of mind are to be understood as quantitative rather than qualitative. It is further believed that these intellectual powers, both in quantity and quality, may be determined and developed quite largely by the way parents and teachers prepare situations toward which the various powers of childish mind may be directed.

Significant developments in the psychology of knowledge processes. Thanks to the skill of psychologists in employing the measuring technique of other sciences in their own fields, several important developments of the past decade may now be noted:

(1) *General vs. specialized features.* The general or common features of knowledge have been brought into marked contrast with the more specialized. As one measures the

distribution of intelligence among wide groups of individuals, it is seen that nature has provided a rather wide distribution of the knowledge processes among mankind, the specific degree possessed ranging from the almost total zero status of the dull to the very extravagant amount of the highly endowed. The relationships of the normal curve of distribution are immediately called to mind. On the other hand, it appears that there are certain special capacities of mind distributed somewhat more narrowly than the general or common intellectual ones. Among these may be mentioned such special capacities as musical talent, art, mechanical aptitudes, constructive powers of various sorts. Apparently the powers of general intelligence regulate success in the more orthodox fields of public school learning; the special capacities are required in the fields of the special subjects. Apparently also success in one does not guarantee similar attainment in the other.

(2) *Quantitative terminology.* The above paragraph suggested the quantitative, mathematical influence under which modern psychology is living. Following in the footsteps of the other sciences, psychology now attempts to state how much or how little the individual possesses of the materials and powers constituting knowledge. The typical intelligence tests represent a series of situations requiring reaction, in due turn, of the more outstanding powers of mind making up the knowledge groups. Hence, an intelligence test provides a cross-section of the mind, from which it is possible to infer a judgment concerning the entire intellectual strength of the individual being measured.

A quantitative terminology is, of course, necessary. The

mental age (M.A.) suggests a quantitative measure, scaled by years and months, of the sheer mental growth of the knowledge functions to the time of measurement. The intelligence quotient (I.Q.) relates this mental growth, by ratio, to the actual chronological age of the individual being measured. The first answers the question of the quantity of intelligence the particular child has; the second raises the question of his brightness for his chronological age.

Some teachers even yet speak scoffingly of the M.A. and the I.Q.; yet these same teachers never hesitate to choose for the edification of the visitor the brightest or the dullest child in their class groups, or even to speak with considerable assurance of some individual as the dullest first-grade child they have known through their many years of teaching experience. The two rigidly secured mental measures mentioned above do nothing more than substitute a careful objective evaluation for the descriptive judgment readily furnished by the teacher. All standardized mental tests merely make quantitative and definite what teachers and parents have been doing ever since a school began. One should carefully differentiate between what service mental measurements actually perform, and the extravagant claims which have been made at times by too enthusiastic protagonists in the field of mental measurement.

(3) *A basic theory of intellect.* Largely upon the basis of the vast amount of research material secured by the employment of test technique, psychologists are almost ready to formulate a basic theory of intellect. From one point of view we may speak of the intellectual powers of mind as showing vertical aspects, these growing concomi-

tantly and reaching their normal maximum of growth approximately at the end of early adolescence. Again, the specific acquirement of the broad facts of knowledge and skill constituting the data of knowledge might be considered as the aspect of horizontal growth. For nearly two decades this distinction between the vertical and horizontal aspects of mental growth has been drawn and all students in the field of individual differences must keep it sharply in mind. Perhaps, in keeping with these two distinctions, one may speak of the various aspects of intellect, such as its height, its quantity and range, its quality, even of its speed of operation. Perhaps theorizing will carry us finally to disregard these theoretical concepts, and to emphasize merely the specific horizontal spread upon successive levels of the actual content or bonds making up the data of knowledge. Professor Thorndike, in a monumental paper, has recently presented this view. With sweeping logic he endorses the theory of concomitance, and shows that any differences to be drawn between the functioning of the so-called lower and higher mental processes are in terms of the respective number of bonds involved. In this regard the employment of a certain number of bonds, viewed either ideationally or neurally as one pleases, might designate a perceptual or memory process; the operation of a far greater number would mean that the mind was facing a situation of the problem-solving, reasoning type. Perhaps this mathematical conception of the intellect emphasizes primarily the horizontal employment or results of the vertical mental functions as these are employed in carrying out their basic mental rôles. In due time such theoretical conclusions

should have great weight in determining actual educational practices.

General intelligence among kindergarten-primary children. A survey of the experimental literature reveals a wealth of information at hand, having great value for guidance when it comes to such matters as classifying children or teaching them to read. A number of significant points are shown by the following observations:

(1) *Overlapping of mental ages.* When one makes a mental-age distribution of children in the elementary school, overlapping is immediately exhibited. Within the first grade are found children who overlap in mentality some children in the fifth grade, just as a small yet significant percentage of fifth-grade children will often overlap a small number of first-year high school pupils. Of course, all primary teachers are familiar with the large over-age pupil retained in the first grade, yet few teachers have until quite recently become aware that mental ages are scattered throughout the grades just as erratically as are chronological ages. Except as school classification has been straightened out by a thoroughly definite employment of mental-age technique as the basis for classification, we find, and will continue to find, that in general the lowest twenty-five per cent of the pupils appearing in any grade belong mentally to a lower grade, and that approximately the upper twenty-five per cent of the grade properly are candidates for classification in a higher grade.

(2) *Individual differences among kindergarten children.* The past few years have witnessed school authorities at work upon evaluating the intelligence of candidates for the

first grade. When large numbers of kindergarten children are measured, as they have been in Cincinnati, Rochester, Detroit, San José, and numerous other cities, a uniform result is obtained, namely, a tremendous range in both chronological and mental age, with a mental-age range considerably exceeding the chronological. The facts, taken from the measurement of 112 kindergartners in certain California schools, are clearly shown below (after Terman):

Mental age	3 to 3-5	3-6 to 3-11	4 to 4-5	4-6 to 4-11	5 to 5-5	5-6 to 5-11	6 to 6-5	6-5 to 6-11	7 to 7-5	7-6 to 7-11	Total
Number	3	2	11	24	17	17	19	16	2	1	112

Such a measurement of kindergarten children signifies that the basic variations of intelligence exist before children come to the first grade, and that these variations have little to do with chronological age. The intelligence distribution of these 112 kindergarten children shows a normal distribution, with the more critical aspects of the educational problem immediately pointed out, both for the over-bright child (120 I.Q. or better) and the dull child (90 I.Q. or less), constituting approximately 28 and 17 per cent respectively of the entire group.

(3) *Individual differences among first-graders.* The most elaborate survey of the mentality of first-grade entrants is that of 10,511 pupils in Grade IB, Detroit Public Schools, for the first semester of 1920-21. These children were rated by the Detroit First-Grade Intelligence Test, which was devised to classify tentatively for purposes of instruction all pupils entering the first grade. The test requires no knowledge of written English, and correlates .69 with the

TABLE II. THE INTELLIGENCE RATINGS OF DETROIT FIRST-GRADE PUPILS EXAMINED IN SEPTEMBER, 1920,
WITH THE DETROIT FIRST-GRADE INTELLIGENCE TEST, AS RELATED TO AGE

well-known Stanford-Binet individual test of intelligence. The ages of all these first-grade candidates, together with the related intelligence ratings, are shown in Table II. It becomes evident that six to six and a half is the typical age for entering the first grade, and that pupils under six do not test as high mentally as the older pupils. Apparently "there is little advantage in encouraging pupils to enter the first grade before reaching six years of age, or in having them remain in the kindergarten after that age, since provision is made for the bright pupils in the *x* group and dull ones in the *z* group." The relations between intelligence of these students to promotion and amount of work done, together with other relationships to school assistance, race, and language spoken in the home will be discussed in Chapter XI. Suffice it to say at this time that the Detroit experiences show that, by means of a group intelligence test, pupils entering the first grade become classified with sufficient accuracy to be of marked help to teachers. The accuracy of the intelligence ratings taken the first day of school becomes confirmed in seventy per cent of the cases by the judgment of the teacher at the end of the first semester.

(4) *Sex differences.* Results are quite uniform in showing that, with chronological age constant, girls of all ages show a slightly higher average of intelligence than do boys of the same age. So, too, the range of intelligence for boys slightly exceeds that of the girls, both in the superior and inferior ends of the distribution. The latter facts suggest that perhaps masculinity is slightly more fluctuating than femininity. When one studies the mentality of adolescence, the fact of a slightly higher median mentality for girls of all ages has

significance. Mental growth curves show clearly that girls are developing faster than boys, and that the boy is under a mental handicap of growth until he reaches his period of rapid growth in the neighborhood of fourteen years. It seems to appear that the reason for the slight superiority of the female shown during childhood and girlhood is the basic fact that the girl is geared to develop faster than the boy. She must arrive at her period of physiological maturity (puberty) at approximately twelve to thirteen years of age, thus antedating the boy by two years. Remembering the positive correlation between physiological and mental growth, one readily perceives that the intellect ratings for girls should surpass somewhat those of boys.

It must be pointed out that the median differences of the two sexes are practically negligible, and never warrant a separation of little boys and girls into different classes because of capacity differences shown by intelligence tests. In fact, the range of intelligence within either sex is infinitely more important and more striking than are differences between the sexes themselves.

(5) *Cleavage between kindergarten-primary and primary-intermediate.* As one surveys the intelligence of successive kindergarten and grade groups, or when the investigator carries the grade children through a long period of measurement, an interesting result is seen — no cleavage of any significance can at any time or in any age be drawn. There is no clear-cut pointed division between kindergarten and preschool children, and certainly not between primary and intermediate children. Children of any age have far more in common with those just entering and just older than they

have in differences. A kindergarten-primary age, except as defined and delimited by assumed mental ages, is a psychological artifact. The so-called kindergarten-primary age is far more a matter of administrative employment than of psychological justification.

(6) *The racial factor.* When children of the same age but of different race are tested in intelligence, interesting and definite contrasts appear. In general, results are shown in the following descending order of attainment: American, North European, Italian, Portuguese, Spanish. Perhaps the native-born negro rates somewhere close to the South European attainments. One is inclined to argue that the Nordic stock is intellectually the superior of the Latin or the negro. Certainly the differences found in racial groups are significant for the actual school handling of children of these groups. Whether the differences are due to such factors as language handicap, home conditions, environment at and up to the time of testing, school experience, attitude toward the test, and, of far more importance probably, the rate of growth of the particular racial stock, we are far from able to say.

(7) *Mental age and school success in the first grade.* In a certain elementary school admitting in September a first-grade group of 210 students, chronologically 5.10 years of age or older, there were found 55 repeaters. The mental age of these repeaters at the time they began their first-grade work a semester earlier had been determined (Table III). This investigation shows that, while occasionally children of competent first-grade mentality will fail in the work of the first grade, first-grade failures are almost always incurred by

TABLE III. MENTAL AGE OF FIFTY-FIVE REPEATERS IN
FIRST GRADE

MENTAL AGE IN YEARS	NUMBER OF CHILDREN
4.0-4.4	3
4.5-4.9	8
5.0-5.4	26
5.5-5.9	12
6.0-6.4	3
6.5-6.9	3
Total.....	55

children whose mental ages were less than six years when they entered the IB grade.¹ The statement of Dickson, made from a study of one thousand first-grade children, carries convincing weight that children below the mental age of six years are not ready for the first grade, and that below the mental age of five and one half years the chances that standard first-grade work will be done are practically negligible. Here rests convincing proof of the cause of the fact that twenty-five per cent of children regularly entering the first grade are compelled to repeat.

(8) *Mental age, educational age, and the accomplishment quotient.* Mental age concerns itself with the relationship between mental development and chronological age. In a similar fashion educational age marks the ratio between measurable educational abilities in the school subjects and chronological age. We speak of both I.Q. and E.Q., the one connoting brightness of mentality and the other brightness in school attainment. It is interesting to consider the rela-

¹ Zornow and Pechstein: "An Experiment in the Classification of First-Grade Children through the Use of Mental Tests"; in *The Elementary School Journal*, vol. XXIII, pp. 136-46.

tion between these two. The pointed question is — What are the child's accomplishments in his school grades in comparison with the mental capacity he possesses? This relationship of educational age to mental age defines the accomplishment quotient. This is the only measure of the three which attempts to view achievement in the light of the effort the learner is putting forth to achieve.

The determination of these three measures with pupils ranging from the very beginning of their school course through college points out some significant results. The bright, over-endowed mentality regularly tends to accomplish less than 100 per cent as much as he is capable of doing; the slow and retarded child is generally accomplishing more than the 100 per cent normally to be expected of a child who is mentally handicapped. In a similar fashion the inferior and poor groups of retarded children are giving better educational returns for the mental capital they have to invest than are the groups of bright children. Of course, the absolute achievement of the latter is always superior to that of the former, but their achievement relative to capacity to achieve tends to be inferior. To state this fact in another way, bright classes and bright children receive promotion, praise, and satisfaction in their school work, when really they should be classified as intellectual loafers; less well-endowed children receive failure, censure, and discouragement, all leading to their dropping-out of school as soon as the law permits, when they properly should be praised for nearly always accomplishing, often through over-motivation and strong display of will, more than the school has a right to expect of them.

(9) *Maturity of intelligence.* As has been repeatedly stated, the kindergarten-primary period is one of rapid growth. The vertical aspects of intellectual growth will reach maturity in adolescence, a phenomenon not to be found in the young child except in occasional cases of definite mental defect, wherein attainment of growth is premature.

(10) *The gifted child.* By agreement, we may speak of any child with an I.Q. of 140 or above as a genius. In other words, his quantitative possession of general intelligence is very great. The unscientific statement is often made that such precocious children are likely to be nervous, unstable, unsocial, erratic, sickly, etc. The recent elaborate studies made upon the gifted child show that there is no basis for this alleged eccentricity of genius. Baldwin has shown that a large selected group of gifted children show anatomical and physiological norms above the average set by unselected children. Terman and others have shown that the physical and mental traits which characterize typical gifted children warrant the belief that more intense educational effort in their behalf on the part of the school would not incur the dangers which the various writers have feared.

(11) *Kindergarten-trained vs. non-kindergarten-trained children.* In Table IV¹ is shown the distribution of I.Q.'s of 130 kindergarten children appearing in the first grade of a large city elementary school. It is significant to note that the year spent in kindergarten has not sufficed to eradicate the wide range of individual differences between the children. In fact, it may easily be shown that all the routine and uniform handling of the lock-step elementary school system

¹ Zornow and Pechstein, *op. cit.*

TABLE IV. DISTRIBUTION OF I.Q.'S OF 130 KINDERGARTEN CHILDREN

I.Q.	NUMBER OF CHILDREN
?-50	4
51-60	4
61-70	15
71-80	20
81-90	26
91-100	34
101-110	16
111-120	8
121-130	3

fails to eliminate these differences. The kindergarten can lay no claim to a power for working miracles with low I.Q.'s, and of delivering all children into the first grade substantially equal in intellectual power for doing first-grade work.

It has been shown that kindergarten-trained children tend to make a better first-grade record than children without kindergarten training. The reasons for this ability rest, not in the wonder-working powers to raise intellectual status, but in the fact that a kindergarten, properly conducted, can get the child well oriented in group life; can develop certain attitudes quite desirable for first-grade reactions; can lay down certain desirable behavior habits; finally, can give the children that uniform background of concrete experiences so essential for the proper building of reading and other skills. It is interesting to point out, however, that the kindergarten in many instances fails to nourish or often to utilize the intelligence of many of its children. It seems to work at times on the theory that its purpose is to serve the child's instinctive and emotional life, perhaps his social powers to some degree, and not to nourish his intelligence. It is

reasonable to point out that no evidence whatever exists to justify the theory that the child of kindergarten age is primarily a being of instincts and emotion, suddenly to blossom out into an intelligent child when he enters the first grade. A natural deduction argues that the first grade should continue to some degree to give place to the instinctive and emotional activities so appropriate to the kindergarten, and that the kindergarten should take advantage of the intellectual powers of its children and prepare definitely for a somewhat strong use of these when the serious work of grade instruction is begun.

(12) *Other kinds of intelligence.* This chapter has concerned itself largely with what some psychologists call *general intelligence*. This term roughly connotes the capacity of the mind to perform abstract operations, employ language, and other symbolic forms, and to manipulate ideas. It seems fully as proper to speak of *mechanical intelligence*, connoting those powers of mind which have to do with the capacity to manipulate materials and things rather than ideas; likewise, *social intelligence*, which has as its forte skill in adjusting to, and hence manipulating, members of one's social group. From what we now know of children in their early years, no striking positive correlations between these traits can be deciphered. In another connection it has been shown that approximately twenty-five per cent of boys in their early adolescence will fall in each of four groups — superior in both general and mechanical intelligence, inferior in both, and superior or inferior in one or the other respectively. While we know little of the application of these facts to the tender ages of the child, it is reasonable to sup-

pose that basic mechanical powers of mind, as well as social powers, are definitely emerging, and that little necessary guarantee of joint possession exists between these so-called forms of intelligence. It may easily be shown that, in the special measurement of mechanical capacity, as well as in the constructive ability of young children, there is no significant positive correlation between the specializing capacities and more basic general ability. Wagoner recently proved, for example, that the constructive ability of young children begins as early as two years of age, and that, while this ability shows a developmental order with increasing age, it is not a function of intelligence and must be considered as a definite special ability.

Such facts should have significance in our theorizing regarding the teaching of children. Apparently we can expect them all to be more or less fitted to profit by regular instructional work of the kindergarten and primary grades, hence to learn to read, write, execute number operations, at foreseen varying degrees of attainments. Apparently we cannot expect certain of these same children, though entirely normal in general intelligence, to do anything worth while in situations demanding the presence of special types of mental powers likely not to be present in their individual mental organization.

QUESTIONS AND PROBLEMS

1. Enumerate reasons justifying an attempt to secure intelligence ratings of kindergarten pupils.
2. What factors other than intelligence may help to determine successful school work?
3. Compare mental with physical measurement.

4. Do educationists need to have a sound theory of intellect presented them by the psychologists?
5. What use may the kindergarten make of the intellectual powers of its children?
6. In view of the facts of mental measurement, can you justify a dual, rather than a fused, kindergarten-primary unit?

CHAPTER VIII

THE EMOTIONAL ELEMENT

JUST as the psychology of knowledge was found to deal with those processes of mind constituting the "whats" of consciousness, so the emotional element concerns itself with the "hows." In a very real sense the emotional or feeling aspects of mind comprise all of those mental materials which at any moment give to mental life its glow, warmth, pleasantness, elation, or depression. It connotes how the psycho-physical organism is *affected*, or *toned*, by the experiences, generally cognitive in character, which constitute it. As the very term *emotion* suggests, emotional processes connote a wrought-up or moved state of mind.

Classification of the emotional processes. Just as the knowledge processes in their totality represent a complex grouping of several highly related, but logically distinct, functioning entities, so we may speak of the various feeling processes. *Affection*, corresponding to the sensational and imaginal elements of knowledge, stands as the basic element of feeling, presenting simple pleasantness or unpleasantness when reduced to its lowest terms. When these affective elements become sufficiently important to have a place in consciousness, we then speak of the entire mental picture as a *feeling* state. When the affective element is raised to a degree sufficient to swamp consciousness and dominate it, we speak of *emotional states*. *Moods* suggest emotions long

drawn out, such as do not subside as soon as the occasion arousing the emotion has passed. *Temperament* suggests permanent modes of emotional expression. *Sentiments* represent the systematized organizations of simpler emotions, around objects and situations as a core or arouser. *Passion* may be loosely considered as a term suggestive of any emotion operating at maximum strength or, more specially, of emotions of sex.

All the above terms and definitions are loose and of only passing value, even though they have played a great historic rôle. They are mentioned primarily to orient the reader in a familiar field. Attention is now turned to a more accurate statement of the psychology of emotion, using the term as generic to cover the entire feeling life.

Modern scientific position regarding emotion. Emotions, together with the instincts, should be thought of as inherited modes of response. The classification of McDougall emphasized the parallelism existing between the basic instincts and the primary emotions. This affinity between the two basic innate forms of reaction often leads psychologists to speak of instinct as a tendency to act, and of emotion as a tendency to feel, characteristically in the presence of proper stimuli. In further keeping with this parallelism, many psychologists speak of emotion as the consciousness of instinctive adjustments running their course, such consciousness being mediated, of course, in sensational terms. Such an attempt to view emotion mentally or subjectively, as is an orthodox psychological desire, leads one to difficulties when true emotional states are confused with such purely organic states as fatigue, hunger, thirst,

these being far easier to localize than the pure emotional "hows" of consciousness.

When one considers emotion from a physical or objective point of view, it appears as an hereditary pattern reaction involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular systems, thus differentiating emotion from instinct in that the "radius of action [of the former] lies within the individual's own organism; whereas in instinct the radius of action is enlarged to such an extent that the individual as a whole may make adjustments to the objects of the environment."

The above judgment merely aims to emphasize the fact that the study of the emotions can be approached from both a mental and a physical avenue. Emotion is a strong feeling-tone complicating the conscious states of mind; it is innate and inextricably associated with instincts; and it involves the visceral and glandular systems of the body, in contrast to the cerebro-spinal nervous system with which primarily the knowledge powers of the mind deal.

When one analyzes moments of consciousness by introspection, emotional elements of varying degrees of intensity, presumably also of differing quality, will often be found present, inextricably interwoven with the cognitive processes themselves. Developing side by side with the instinctive and cognitive, and being brought under systematization and control, the emotions participate in bringing the individual finally to have a well-ordered ability of reacting to the complex life-pattern which modern society sets up.

Bodily basis of emotional response. So far as the present

knowledge of physiology extends, it seems clear that the autonomic nervous system, in contrast with the cerebro-spinal, is concerned with emotional expression. Specifically, this complicated machinery comprises the autonomic nervous system proper, the smooth muscles, the duct glands (salivary, gastric, pancreas, liver, kidney, and skin) and the ductless glands (thyroid and parathyroid, adrenal, pituitary, pancreatic, and especially sexual). In contradistinction herewith, the cerebro-spinal nervous system, especially in its higher cortical levels, seems largely operative as the neural basis for knowledge developments, as treated in the preceding chapter. The vital activities of these physical structures of the autonomic nervous system no doubt furnish a part of the drive to mental life, exert a directive effect upon the course of thought, furnish some of the fundamental motives of life, and give occasional persistence and strength for both physical and mental applications quite beyond the ordinary. Drive, depression, instability, etc., are emotional pictures presumably linked with the functioning of the autonomic system and the expressive organs controlled by it.

The last few years have furnished a tremendous advance in our knowledge of the exact physiology of emotional expression. The monumental researches of Cannon, Pavlow, Watson, and others have shown that certain emotional stimuli (*a*) impede, block, or accelerate activity of the duct glands and smooth muscles, and (*b*) cause the release of the various glandular secretions or autocoids, such as adrenalin, thyroxin, etc., as a result of which discharges into the blood, definite bodily effects are produced. The effects very often

are such that the individual under the emotional sway becomes better prepared for meeting the demands of the situation confronting him. In a very real sense, therefore, emotions are those preparatory reactions automatically aroused when the situation requiring adjustment is of an unusual character. Not only does the body respond often to produce an unusual amount of vital energy, but also the vegetative processes are automatically readjusted both to supply this demand and to permit the more rapid elimination of the waste products.

Genetic study of emotions. Thanks to the none too gentle ministrations of the behavioristic school of psychology, considerable investigation is being conducted regarding the primitive emotions of children. The behaviorist, before beginning his investigations of the emotional pattern reactions of infants, proceeds to consign to the waste-basket all the work of James, McDougall, and others, and starts his problem of investigation all over again. He brings into the laboratory a large number of children, of any age and social standing he desires. When under controlled conditions each child is presented with a wide range of stimuli, his reactions are duly recorded. The behaviorist argues the necessity of studying emotional behavior with infants and young children rather than with adults, because he has long since learned that emotions become modified and identified with habits (learnings) so easily and quickly that the only way to secure knowledge regarding primitive emotions is to go back to the very early months of child life.

When this genetic study is made by employing the stimulus-response technique, probably only three reactions

properly recorded as original and fundamentally emotional result (according to Watson) *fear*, *rage*, and *love*; although it must be emphasized that the Watsonian use of these terms strips from them most of the connotations which adults have come to attach. Rather, these terms are to designate reactions just as specific and definite as those describable in breathing or heartbeat. It appears that the emotional reactions themselves are quite simple, and the stimuli which call them out quite few in number. Presumably these primitive emotional reactions form the nucleus out of which all future emotional states arise.

The three basic emotions may serviceably be analyzed into their unlearned stimulus and response elements as follows:

1. (Ordinarily called Fear.)

(U)S.....	(U)R
Loud sounds.	Checking of breathing, "jump"
Loss of support.	or start of whole body, crying, often defecation and urination (and many others not worked out experimentally. Probably the largest group of part reac- tions are visceral).

2. (Ordinarily called Rage.)

(U)S.....	(U)R
Restraint of bodily movement.	Stiffening of whole body, screaming, temporary cessation of breathing, reddening of face, changing to blueness of face, etc. It is obvious that while there are general overt re- sponses, the greatest concen- tration of movement is in the

visceral field. Blood tests of infants so manhandled show that there is an increase in blood sugar. This means probably an increase in the secretion of the adrenal glands.

3. (Ordinarily called Love.)

(U)S.	(U)R
Stroking skin and sex organs, rocking, riding on foot, etc.	Cessation of crying; gurgling, cooing, and many others not determined. That visceral factors predominate is shown by changes in circulation and in respiration.

The pattern seems simple, so that the reader wonders, for example, what has happened to such stimulations as the dark, strangers, animals, etc., as provocative of fears of children. Will he view the description and classification as far too insufficient, and should he contract or narrow emotion as a factor in human behavior? It would seem better — and the only scientifically accurate position — to recognize the tremendous habit-forming aspects to which these simple primitive emotions, no less than the instincts, are subjected. The emotional life of a child of kindergarten age, and fundamentally more so for the adult, shows enormous complexity. The basic emotional mechanisms are attachable to almost any object. More than that, objects which at first do not in any way call out an emotion, come later to be very ready excitants for such. The exact technique of attaching an emotional response to a stimulus, not already the normal excitant for such, defines the tremendously interesting procedure known as *conditioning a response*.

The reader is now invited into a psychological laboratory, there to see the exact technique of conditioning a fear response in an eleven-months-old infant. Picture the child naturally playing with a pet, for example, a white rat. It has earlier been shown that nothing but loud sounds and the removal of support would bring a fear response in this child; also, that everything coming within twelve inches of him was reached for and manipulated. The child's reactions to the loud sounds produced by striking suddenly a steel bar were the normal ones of fear. Now inspect the following laboratory notes made, these showing the progress in establishing a conditioned emotional response:

Eleven months, three days old. (1) White rat which he had played with for weeks was suddenly taken from the basket (the usual routine) and presented to Albert. He began to reach for rat with left hand. Just as his hand touched the animal, the bar was struck immediately behind his head. The infant jumped violently and fell forward, burying his face in the mattress. He did not cry, however.

(2) Just as his right hand touched the rat the bar was again struck. Again the infant jumped violently, fell forward and began to whimper.

On account of his disturbed condition no further tests were made for one week.

Eleven months, ten days old. (1) Rat presented suddenly without sound. There was steady fixation, but no tendency at first to reach for it. The rat was then placed nearer, whereupon tentative reaching movements began with the right hand. When the rat nosed the infant's left hand, the hand was immediately withdrawn. He started to reach for the head of the animal with the forefinger of his left hand, but withdrew it suddenly before contact. It is thus seen that the two joint stimulations given last week were not without effect. He was tested with his blocks, immediately afterwards, to see if they shared in the process of conditioning. He began immediately to pick them up, dropping them and pounding them,

etc. In the remainder of the tests the blocks were given frequently to quiet him and to test his general emotional state. They were always removed from sight when the process of conditioning was under way.

(2) Combined stimulation with rat and sound. Started, then fell over immediately to right side. No crying.

(3) Combined stimulation. Fell to right side and rested on hands with head turned from rat. No crying.

(4) Combined stimulation. Same reaction.

(5) Rat suddenly presented alone. Puckered face, whimpered, and withdrew body sharply to left.

(6) Combined stimulation. Fell over immediately to right side and began to whimper.

(7) Combined stimulation. Started violently and cried, but did not fall over.

(8) Rat alone. The instant the rat was shown, the baby began to cry. Almost instantly he turned sharply to the left, fell over, raised himself on all fours and began to crawl away so rapidly that he was caught with difficulty before he reached the edge of the mattress.¹

The above report indicates that many, probably most, of our fear responses are directly conditioned in origin and are not hereditary in character. The same general statement would apply for our responses of anger, love, and other ways of behaving into which a strong emotional tone enters. In just as definite an experimental fashion it can be shown how emotional responses once conditioned have a spread or transfer effect upon different but related stimuli. For example, in the case of the infant above described as conditioned to fear the white rat, this emotional response became somewhat normally attached to rabbits, pigeons, fur muffs, the hair of the attendants, and Santa Claus masks.

Apparently, therefore, unconditioned stimuli and situa-

¹ Watson, J. B.: *Behaviorism*, p. 126. Reprinted by permission of W. W. Norton & Co., Inc.

tions, with their inherited and unlearned responses, constitute the basic pattern upon which the child builds his very complex emotional life. We may very properly classify these modified emotional patterns as learnings, or habits; they are built in, ordered, expanded, and interrelated through individual experiences. Just as the youngster learns to read and write or to effect any other modification of his behavior through experience, he learns to fear, love, be angry at, wonder at, and be elated or awed by certain persons, objects, or events largely through experiencing them. The obligation upon the teacher becomes a gigantic one. Rules of arithmetic, spelling, and skill in writing must be developed; also, conditionings and organizations basic to ideals, sentiments, and character must be secured through the proper handling of the emotions.

Principles underlying emotional development. In studying the rapid development of the emotional life of children, certain principles common to the psychology of emotion in all stages of human growth may well be rehearsed.

(1) Instincts, primitive emotions, and habits (learnings) become increasingly consolidated and integrated from the days of infancy through adult life. This principle of consolidation may be readily seen in the case of childish anger. The five-year-old shows the tendency to fight (instinct) and to be angry (emotion); the learned technique of fighting (largely the prize-fighting poses, feints, and foot-work taught by his older brother); the persons or situations toward which he has become conditioned to be regularly or occasionally belligerent; finally, many learned (mental) ways — argument, bluffing, calling names, coaxing — which

may be employed in lieu of making a physical onrush. The psychology of attitudes, whether of the child or of the mature individual, emphasizes primarily this principle of combination of the unlearned and learned. Descriptive terms, such as *jealousy*, *embarrassment*, *silly*, *lovey-dovey*, connote the child's consolidation to date of the basic instinctive-emotional-habitual factors, and suggest the deeply rooted rôle for good or ill even childish attitudes may be playing.

(2) The emotional trends rendered fairly organized and systematized around some object or core competent to excite them defines the sentiments. The adult has his emotional life stabilized and his social relations definite and satisfactory largely because he has developed sentiments; that is, through experiencing he has developed permanent systems of emotional dispositions incitable by appropriate stimuli. Childish sentiments differ from those of the adult quantitatively, hardly qualitatively. The matured sentiment has a larger amount of knowledge or intelligence as its core; its emotional ingredients have long since established their place within the system; the speed and strength of arousal are fixed. Yet the emotional stuff is of the same primary qualities with which the child is working. Differing only in degree of development, both have such sentimental compoundings as admiration, awe, reverence, gratitude, scorn, fascination, envy, reproach, anxiety, jealousy, resentment, vengeance, shame, bashfulness, joy, sorrow, pity, happiness, sympathy, love, hate, and respect.¹ The kindergartner and other teachers literally bring the primary emotions into consciousness time after time, and under con-

¹ See McDougall, *op. cit.*

trolled conditions, as they "stage" the situation to call them forth. Among these conditioners may be mentioned the obvious — music, art, literature, plays, and games, religious instruction, history. The teacher furnishes the situation or opportunity for the instinct-emotion pattern to act; together with parents, playmates, and the rest of world, she is providing opportunities, both good and bad, for children to *live through*, as a result of which these emotional organizations become built up.

(3) The sentimental and attitudinal mental states of children are essentially fluid and unsteady, deficient in many ways, strangely capable of being aroused at times, and again sluggish. Further intellectual attainment and a broader and more extended experiencing will bring steadiness and consistency. The raw material of primary emotions cannot become organized except by experiencing through time. Only the ignorant teacher and the adult-minded parent demand from the child an emotional organization not psychologically possible.

(4) The suppression of emotions in the primary child is probably not nearly so real a phenomenon as for older children. The theory of the "subconscious" has little to offer in explanation of the behavior of children. In his stage of unsophistication (unconditioned responding), the child is quite likely to respond more naturally to his problems than the adult. He behaves to things as they appear to him, not as they appear to society. This naiveté is the beautiful and lovable part of childhood; sophistication comes with years. The wise parent or teacher neither desires the suppression of the child's natural emotions nor their unbridled escape and

expression. She does expect that native emotional energy will, instead of being suppressed, normally enter into, or drain off into, the formation of the sentiments, attitudes, and ideals in a way of reassociation or conditioning entirely natural to the psychology of learning. Blocking the pent-up emotional expression of children is no less foolish than impossible; providing for and guiding is no less wise than reasonable and possible.

Training emotions of children. Several methods are logically recommended for training the emotions, although, upon analysis, perhaps all these reduce to the basic fact of setting up conditioned responses. Restricting the discussion to a single field of training (*fear*), the following are laboratory-tested methods of training for reconditioning:

1. *Elimination by disuse.* Keep the object causing the state away. Very frequently, though, the fear returns with the sight of the object, even after an extended interval.
2. *Verbal appeal.* Talk about the thing causing the state, stressing its interesting and attractive features. Occasionally successful.
3. *Negative adaptation.* Let the thing causing the fright be present while the child is occupied, calling no attention to it — merely allow it to lie within sight. Occasionally successful.
4. *Method of repression.* Make fun of the fear state. Often produces sullenness. Sometimes it takes psycho-analysis to unearth what has dropped into unconsciousness as a result of this suppressing. This method should never be used.
5. *Method of distraction.* With cause of fear present call attention to attractive features, characterize it, etc. Successful at times.
6. *Direct conditioning.* Use something which the child likes when it is present, such as food for young children, hoping to transfer the pleasant association from it to the object feared. Careful watching is necessary to see that the undesired response does not travel the other way.

7. *Social imitation.* Have the child play with the fear-provoking stimulus, if it can be played with, in presence of children of similar age who are not afraid. The child may withdraw at first, but the example of the group will usually interest him in it and he forgets his fears. Can't be accomplished by a group of adults.

It is maintained that some one of these methods will always work if rightly used, and for a sufficiently long time. Numbers 6 and 7 will usually work by themselves, or in combination with the others or the others in combination with each other.

Example from experience. A mother of a lad of four years of age contributes the following:

Don, who was viewing his first fireworks, became terrified at the noise, burrowing into me to shut out all sight and crying in fright. His older sister and I talked to each other about the fireworks, letting him alone save for a caress or so; no scolding or forced attention. The method of distraction was utilized in the form of a discussion with sister about the pretty green and red balls. "Oh! see, it's chasing the stars!" — or, "I'm going to catch one for you, Betty — here it comes, isn't it lovely?" Finally curiosity was roused to such a pitch that the child looked with furtive glances at the fireworks, each time he did so, I attempted to attach a pleasant response instead of the fear state which had followed the stimulus. Methods six and seven [see above] were also used as the slow re-conditioning proceeded. An ice-cream cone was the pleasant feature from which pleasure was gradually transferred to the fireworks. When social imitation in the form of talking about all the happy youngsters around and of praising his meritorious peepings finally drove all signs of fear away, he laughed with joy and clapped gaily at each bang before the evening was over.

QUESTIONS AND PROBLEMS

1. How valuable and basic is the conditioned reflex in explaining the phenomena of learning?
2. Is it accurate to classify all reaction as reflex, instinctive-emotional, and habitual (conditioned)? Illustrate each type.

3. Select some basic attitude or sentiment that a kindergarten teacher seeks to develop; suggest situation and technique employed; finally, dissect the primary emotions aroused and made to enter the system or organization.
4. Illustrate each of the seven laboratory methods for training the emotions Suggest others.
5. Is it correct to paraphrase as follows: "One learns to feel by doing"?
6. How real is the fact of suppressed emotions in childhood? Attachments and detachments? Illustrate.

CHAPTER IX

THE VOLITIONAL ELEMENT

General psychology of volition. Volition, like cognition and emotion, has a question of its own to answer. While cognition is concerned with the content or "whats" of consciousness and emotion with its feeling tone or "hows," volition embraces consideration of how its action in its totality is controlled. *Volition*, defined, is the capacity to control action.

The reader has long since seen that the stimulus-response hypothesis has been fundamental to all our earlier discussion of behavior. He has seen that many reactions of the stimulus-response mechanism (that is, the child) may be of the innately instinctive or emotional type. He has also seen how the cognitive and emotional factors of a highly conscious order come to play their part in controlling behavior. A study of volition must bring all the above into perspective, and focus attention upon the mind at work in its most developed modes of controlling action.

Range of volition. As a complete account of the control of action, volition properly includes much that has been stated in earlier chapters regarding natural tendencies to action, because volitional processes depend directly upon and grow out of these native impulses. The entire development of volition must be thought of fundamentally as the process of reducing native impulses to order. The fully matured character may be defined as one in which primitive

impulses are properly subordinated to some systematized principles. A discussion of volition will naturally require some attention to the sensory, ideational, attentive, emotional, and interest factors of mind. Lastly, there must be involved a careful inspection of those occasional crises of mental life in which the individual must pause, and must thoroughly evaluate a situation; in which he must deliberate, weigh, and finally choose one of several possibilities of response. This procedure naturally suggests the familiar term *will*. It is in just such crises that we find all powers of the mind called into play. Here the demands of adjustment are at their maximum, and the energies of the mind at white heat. *Will* herein becomes synonymous with the whole mind active (Angell); the sum of all the conditions of choice (Pillsbury).

The question of will. Concerning the specific quality of will, it has been pointed out earlier that the basic psychic elements of knowing reduce to *sensation* plus *image*; specifically, for externally and internally aroused processes of knowledge respectively. It has also been suggested that the simple *affective* quality of mind is the basic element for all emotional states. Is there a specific, distinct, and novel volitional element of will? Upon introspective analysis of those moments of mental crises in which it seems that choice is entering, is any new sort of mental quality or stuff recognizable? Does this will element not only exist as such, but may it be called forth and given definite exercise and training, to the end that, disciplined in one field, it may become powerful and valuable for all fields quite distinct from the one in which its training was secured? The older scholastic

psychology leaned toward an affirmative answer; modern psychology, a negative.

Contrary to the cases of cognition and emotion, there seems to be no element for volition. Even in those occasional moments involving deliberation, delay of action, and selective choice, no new psychic qualities function. And indeed this statement is not intended to imply that there is no will. It rather emphasizes the fact that all consciousness is at work to help the organism make the best type of adjustment.

Will rather designates the entire original individual inheritance as modified by experience when applied to action. The action chosen may be more instinctive than learned, more impulsive than shaped by acquired ideals; it may be given spontaneous instead of voluntary attention; it may be immediately interesting rather than remotely so, or dictated by pleasure rather than by a sense of duty. In such moments of choice no element of decision emerges to throw its weight upon the side of the weaker claimant. Decision is dictated by past experience. The action chosen is the one which has proved most successful in the past, and which promises best so far as the individual can gauge the future. No will is free — it is bound by the inheritance of human nature and the modifications stamped upon it by the forces of one's social and physical environment. The power to learn and the possibilities of reshaping the raw material of instinct and emotion until the consolidation of ideals and attitudes of permanence and worth result therefrom unite in offering the individual a freedom wherein his action springs from the broader field of past experiences and not from the

narrower experiences of the present moment. Then he is free indeed.

Volition in the child. The volitional life of the child tends to differ from that of infants and people older than himself in direct proportion to factors of age, experiences, general intelligence, emotional stability, and direct instruction. Volitional development is not in any sense a thing foreign to the child's general program of living. It is natural to suppose that, for most children, action will be largely instinctive and impulsive in nature, with perhaps a minimum of internal check or control. The latter, of course, comes through experience and growth. External control of parents and teachers is largely effective in setting up a counter-current to the operating impulse.¹

This external factor exerts its power by offering something that appeals to the instinct of imitation, or gratifies some desire, or uses the instrumentality of pain by way of deterrent. Through repetition and association, habits of action begin to form, and in the next period (nine to twelve) this is perhaps the outstanding fact, from the point of view of will-growth. The area of ideation is, of course, becoming much enlarged, and whole new orders of ideas are coming into active relation to the motor equipment. It is also true that progress is made in the direction of independence and autonomy of will. But after all, the consolidation is the most conspicuous feature of the period.

What has been said of the character of volition in the child, and the suggested reference toward its control by controlling his attention through proper environment, should not cause it to be forgotten that there are marked individual differences between children so far as their volitional powers

¹ From Tracy, F.: *The Psychology of Adolescence*, p. 109. Reprinted by permission of The Macmillan Company, publishers.

are concerned, no less marked than various other developmental traits and powers have been shown to be. Any kindergartner can point out a child whose action may be almost totally dominated by primitive impulses, with little semblance of order or modification shown; in the same group will likely be found that child into whose behavior restraint, thoughtfulness, and kindness seem to enter. Such observations suggest reiteration of what was emphasized above—children differ in their actions because they have differed by nature, and by the experiences they have lived through (nurture). The action of each child is a direct outgrowth of, and limited by, this dualism upon which all response depends.

The traits of children in their volitional relationship. Some little scientific work has been done in the study of those character traits which are volitional in character; that is, those entering largely into the action consciousness. Terman and Proctor, who have studied the relationship between intelligence and leadership, found that power to give sustained attention, persistence, and initiative, and to act in a manner acceptable to one's associates, all correlate highly with intelligence. Furthermore, low correlations of obedience, unselfishness, and emotional self-control with intelligence were found. Perhaps these two facts alone justify a conclusion that volitional powers depend in large measure upon intelligence. There is no guarantee, however, that children of high general intelligence will invariably be leaders in their group life, for occasionally a child of high intelligence has not had an opportunity provided for leadership. In such cases proper social handling in school will

consistency neither exists nor can be expected to exist, since the specific response or action made to a given situation is determined by many factors which may function in conditioning its decision, while some of these may not be called into play in any other situation. Here we have merely stated in other words that volition involves nothing beyond the dualism mentioned in an earlier paragraph in this chapter.

The training of will. The preceding chapters have not prepared the reader for the belief that a specific will element may be called forth occasionally, and properly exercised toward a desired volitional goal; rather, they have undoubtedly brought the reader to see that will, in the broader sense, is being trained through every moment of conscious existence through which the individual lives. As has so often been stated, training the will is synonymous to training the entire individual.

All that the school, the home, or any other institution — all that even the child himself may do in training his will — may be summarized in these few suggestions: (1) Confront the child with situations which require of him the learning and the formation of new ways of responding; (2) give the child an environment, both material and immaterial, of such a sort that proper sentiments and ideals become naturally developed; (3) provide children living normally together with vital experiences through which their proper habits and ideals of group-life may be developed; and finally, (4) place the child under obligation to live up to the proper habits and ideals which he and other members of his child community possess.

In other words, all that we know of inherited tendencies, of proper environmental influences, of control of attention, of laws of association, of processes of habit-formation, of the conditioning of emotions, of the laws of learning, including the powerful law of effect, should be utilized in assisting the child to develop his will.

The healthy will is the outgrowth of vital and full-group living. The philosopher at whose shrine kindergartners worship pleaded for the development of a certain sort of unity, wherein finally harmony would be obtained between knowing, feeling, and willing. A truly developed will, quite irrespective of chronological age, displays this balance of harmony among what the individual knows, what he wants, and what he does. Training the will is synonymous with training the entire child; it becomes successful under conditions of normal group living.

QUESTIONS AND PROBLEMS

1. Is the Froebelian concept of will in agreement with the position of modern psychology, as stated in this chapter?
2. Expand and illustrate: "The entire development of volition must be thought of fundamentally as the process of reducing native impulses to order."
3. What is meant by "arousing the will"?
4. How would you attempt to develop initiative in a child who is naturally shy and retiring?
5. Relate interest and desire to will and its training.
6. When children *suppress* certain impulses, is such suppression based upon the *expression* of others? To root out a bad impulse, must we set some contrary impulse to work? Use some concrete case for illustration.

SELECTED REFERENCES FOR PART II

- Baldwin, B. T. *Mental Growth Curve of Normal and Superior Children.* (1922.)
- Baldwin, B. T. *The Physical Growth of Children from Birth to Maturity.* (1920.)
- Cannon, W. B. *Bodily Changes in Pain, Hunger, Fear, and Rage.* (1915.)
- Chapman, J. C., and Counts, G. S. *Principles of Education*, problems 2, 5, 6. (1924.)
- Gesell, A. *The Mental Growth of the Pre-School Child.* (1925.)
- Harrow, Benjamin. *Glands in Health and Disease.* (1922.)
- Hines, H. C. *Measuring Intelligence.* (1923.)
- Johnson, B. J. *Mental Growth of Children in Relation to the Rate of Growth in Bodily Development.* (1925.)
- Norsworthy, N., and Whitley, M. T. *Psychology of Childhood.* (1918.)
- O'Shea, M. V., et al. *The Child: His Nature and His Needs*, chaps. I-IV, IX-X, XIII-XIV. (1924.)
- Pechstein, L. A., and McGregor, A. L. *Psychology of the Junior High School Pupil*, chaps. V-IX. (1924.)
- Terman, L. M. *The Hygiene of the School Child*, chaps. V, VI, and XXI. (1914.)
- Terman, L. M. *The Intelligence of School Children*, chaps. VI, IX. (1919.)
- Watson, J. B. *Behaviorism*, lectures V-VIII. (1925.)
- Watson, J. B. *Psychology from the Standpoint of a Behaviorist*, chap. V. (1919.)

PART III

THE CHILD AS A PUPIL

CHAPTER X

INDIVIDUAL DIFFERENCES IN CHILDREN

WE have in the preceding chapters very systematically described the child, from the various aspects of growth, inheritance, learning, and the classical analysis of his mental life into intellect, emotion, and volition. Let us now weave the threads into a coherent pattern, and look at the child as an individual unit or whole.

Individuality and types. Without solving, or even raising, any metaphysical problems, we may note two definite points of view regarding individuality. All human beings may be regarded as deviations from a single type, MAN; or as belonging to various types, these types being as numerous or as few as the psychologist, by the use of his analytical skill, cares to derive. Referring to earlier chapters on "Childhood and Growth," and "The Intellectual Element," the reader will recall the stress laid upon the curve of normal distribution. Differential psychology, together with modern biology, indicates that for any given element in the native equipment of the human organism adequate measurements will show conformity with this curve. Few traits occur according to an all-or-none principle. The typical human being is best portrayed in the mediocrity found at the centers of the distributions for all the various traits human beings possess.

There is no intimation herein that height on one scale will guarantee height on another. Rather, actual measurements indicate that types, in terms of profiles¹ obtained from a series of measures, would be as numerous as the individuals tested were the series of measures inclusive of all traits. John Jones, an average man, is measurable in literally thousands and tens of thousands of respects as to physical and mental constitution, or as to behavior patterns, and no one would expect ever to find a Thomas Brown, likewise an average man, identical with John Jones.

A single scale of adaptation. On the other hand, the fact is well established that desirable traits are positively correlated; that hard and even brutal as Nature may seem to be, she follows no law of compensation in distributing her blessings and curses. Whether or not there are any type patterns, to the number of three or ten or one hundred, which may be serviceable concepts in describing human beings, we may nevertheless classify human beings along a single line in terms of general adjustment to their social and physical environment. Those individuals who fall at approximately the same points on this line are not necessarily alike in all respects; rather does one fall somewhat below the other in certain phases of adaptation and somewhat above in others. By measures of adaptation we mean not only the usual measures of intellectual capacity, but also those of social adjustment and mechanical ability. Herein lies hope for classification and prognosis. Were each individual strictly a law unto himself, the giving of class instruction

¹ Downey: *Will-Profile*. See also any standard text on Educational Measurements.

would be practically impossible. Fortunately, children can be grouped in terms of the summation of their adaptive powers, exactly as pointed out in the chapter on "The Intellectual Element."

Gifted and dull children. Significant questions may be raised regarding those placed at each end of this single scale of adaptation. One thousand children at the upper end, commonly described as gifted, have been carefully studied by Terman.¹ These gifted children, of all ages and from all school grades from the primary up, surpass unselected children in objective tests of honesty and trustworthiness and other moral traits. The typical gifted child of nine years of age possesses a larger store of definite knowledge about play and games than the average child of twelve. In direct contrast to the precocious one-sided child, he has a wealth of interests, and is far less subject to psychotic tendencies than is the average child. Ordinarily one identifies the brightest child in the classroom more readily by selecting the youngest pupil than by seeking the teacher's opinion of the ability of her pupils. This conclusion is typical of Terman's conclusions.

Conversely, the less gifted individual at the other end of the scale is likely to be low in every aspect of adjustment, emotional and volitional. Let it not be forgotten, however, that, both for the superior and for the inferior in adjustment, these are tendencies that do not fully describe any given individual. Obdurate bright children and tractable dull children will come instantly to mind. While inherited factors may account for the position on this one best scale, the

¹ Terman, Lewis M.: *Genetic Studies of Genius*, vol. I.

factors of learning detailed in an earlier chapter may properly account for the numerous differences which exist between children of identical intellectual level.

The study of differences in young children. Each child is an individual, like his fellows, in possessing more or less practically every mental and physical capacity, quality, and trait which any one of them possesses, but each with a unique combination of quantities of these qualities. If he is to be understood, we must find a method of studying each of his major traits. There is no royal road to the understanding of the individual child. Few have worked on the problem of measurements here, as compared to the many who have worked at higher levels, evolving scales for measurements of special capacities, of mental stability, of will-temperament, of vocational interests, and of achievements. Typical of the work done with young children are the studies by Chassell,¹ Rogers,² Otis,³ and Woolley and Ferris,⁴ as well as the more familiar tests for young children. There is need for some one to devise a systematic questionnaire for the analysis of the individual young child, perhaps on the pattern of Watson's analysis⁵ and Allport's question-

¹ Chassell, Clara F.: "The Army Rating Scale Method in the Kindergarten"; in *Journal of Educational Psychology*, vol. 15, pp. 43-52. (1924)

² Rogers, Agnes L.: *A Tentative Inventory of Habits*. T. C. Bulletin, 14th series (1922.)

³ Otis, M : *A Study of Suggestibility in Children*. *Archives of Psychology*, no. 70. (1924)

⁴ Woolley, Helen T., and Ferris, E : *Diagnosis and Treatment of Young School Failures*. United States Bureau of Education, Bulletin 1. (1923)

⁵ Watson, J. B.: *Psychology from the Standpoint of a Behaviorist*, pp. 399-404.

naire,¹ both of which apply primarily to adults. The teacher will profit by a study of the methods of social workers in collecting case histories, family backgrounds, and developmental data, and much can be done by any servant and unbiased teacher who will make careful notes as to the actual demeanor of children in specific situations. Record-keeping is essential.

School failures among children. As an indication of the range of characteristics which must be studied to give a complete picture of individual differences, we may refer specifically to the work of Woolley and Ferris, who, after a long period spent in studying school failures among young children, have recently demonstrated that the failures can be grouped according to the dominant cause of the difficulty, as follows: (a) children who were especially neglected at home; (b) high-grade defectives, although their intelligence quotients were still above the usually accepted limits for defects; (c) those with special defects which make the acquisition of a given type of knowledge unusually difficult; and, finally, (d) the psychopathic.

With reference to the general mental tone and attitude of the pupil, they point out the weighty consideration necessary to give to (a) mental distraction due to anxiety, caused by poverty, constant quarreling, or immoral behavior of parents, divorces, or cruelty to children; (b) personal conflict between the child and his parents, or between the child and his teachers; (c) obsessions or fears; (d) special disabilities; (e) character defects, such as excessive shyness

¹ Allport, T. H.: *A Systematic Questionnaire for the Study of Personality*. (C. H. Stoelting Company.)

or abnormal stubbornness; and (f) psychopathic conditions.

Individual differences in constructive abilities of young children. No special field for the study of individual differences is more important than that of the manipulative ability — the power to handle objects and make them behave, to create new forms, to express ideas in terms of tangible things. Wagoner has studied the constructive ability of young children,¹ as shown in copying patterns and creating new ones with colored marbles placed in shallow holes in wooden boards. Significant conclusions are as follows:

Constructive ability, as measured by this experiment, appears not to be a function of brightness, but tends rather to be an independent variable which shows certain interesting sex differences. The construction of a definite design appears as early as two years and shows a developmental order with increasing age. These designs show characteristics similar to those noted in children's drawings, schematic quality, inversion, and symbolism. Such temperamental characteristics of the child as extroversion, introversion, interest in detail, and independence are thrown into relief in the making of designs. The findings of this experiment confirm the results of study of children's drawings, namely: outlines are recognized as pictures, and simple wholes are portrayed, with a tendency to supply details in imagination.

Individual differences in introversion and extroversion. This quotation from Wagoner uses two terms which have come to mean much for the study of personality. The extroverted person is one who directs his emotionally aroused energy toward the outside world through the use of the

¹ Wagoner, Lovisa C.: *University of Iowa Studies in Child Welfare*, vol. 8, no. 2. (1925) Quoted by permission.

skeletal muscles. The introvert tends rather to inhibit external expression and to dissipate such energy within the organism, in visceral and glandular reactions. That the stimuli which most clearly differentiate introversion and extroversion are social stimuli, is the general thesis laid down by Marston in his recent study of "The Emotions of Young Children."¹

This investigation shows such interesting results as to warrant extended quotation:

The experimental procedure of this investigation placed the child in four situations and measured in simple behavioristic terms his resulting introverted or extroverted reactions with reference to (1) social resistance, measured by the readiness or reluctance with which the child yielded to the attractions of an interesting toy in the possession of a stranger, the experimenter, who assumed in sequence different attitudes toward the child from complete disregard to cordial invitation to play with the toy; (2) compliance, measured by the child's reactions to the experimenter's request that he open a box with fastenings complicated beyond the child's ability to release; (3) interest, measured by the child's reactions to the many and novel attractions of an animal museum; and (4) self-assertion, measured by the presence or absence of attempts by the child to obtain a toy for which he had expressed a preference when another toy had been substituted for the preferred toy. The child's performance in the four situations was expressed as an extroversion score.

Marked individual differences in introversion and extroversion exist among young children, according to ratings on the introversion-extroversion scale expressed as extroversion scores ranging over 60 points of a maximum range of 80 points.

The different experiments measure traits that are expressions of a general factor of extroversion. Boys are significantly more extroverted than girls. The results do not establish definite relation-

¹ *University of Iowa Studies in Child Welfare*, vol. 3, no. 3. (1925.) Quoted by permission.

ships between chronological age, mental age, height, and weight and extroversion in the narrow age-range of these children, but indicate a decrease in extroversion by experiments with increase in chronological age, a change much more apparent in the case of the girls.

The traits described by the introversion-extroversion rating scale and the traits selected for measurement by the experiments quite clearly are not measured by the intelligence test, but are nevertheless personality qualities that determine in no small degree the individual's adjustments to his surroundings. This investigation has proved that children long before the normal age of school entrance, even as young as two and three years, have already developed characteristic attitudes of introversion and extroversion toward certain significant situations. While the province of this study has not been to determine the relative superiority of either type, the introvert or the extrovert, either in general or in specific traits, nor to devise methods of modifying the child's characteristic attitude, the desirability of ascertaining the young child's type tendency as a guide to his later emotional and social training is clearly implied in both the theoretical assumptions and the experimental results. The very descriptions of the particular traits with which this investigation has been concerned concretely involve educational objectives with which educators must reckon who would base the educative program on child nature.

Significance for education. Thus, without lessening in the slightest the strenuous emphasis which earlier chapters have placed upon learning and habit-formation, we would stress the importance of knowing thoroughly the children whom one seeks to educate, as individuals. Identical stimuli will not produce identical reactions, for as each child comes to school, he brings with him a different heredity and tremendously varying experiences. Town,¹ in her "Analytic Study of a Group of Five- and Six-Year-Old Children," shows that the basis of both physical and character defects

¹ *University of Iowa Studies in Child Welfare*, vol. 1, no. 4. (1921.)

that may result in failure either in school or in life is already detectable when the child first enters school. Published in 1921, these words seem almost prophetic:

If educators would succeed in leading the next generation to the success of which it is potentially capable, they must enter the homes and help the young parents in whose care are those first five years so important for the laying of a firm foundation of health and good habits. In order to furnish such guidance, educators must study the children during their first year in school, and see to it that those who are handicapped by physical or mental defects or derangements are provided with the medical and pedagogical aid that they require.

An interesting corollary to this statement of the importance of the pre-school years implies the possibility that the improved educational treatment of young children, even of infants, will affect their mental growth and their intelligence quotient. Even in the short span of the past few years, enough experimental work has been done in the nursery schools to suggest the following: (1) By an enriched environment and proper educative methods, mental growth of young children can be made to take an amazing spurt. (2) In consequence, intelligence quotients can be made to change 15 to 30+ per cent in a matter of a year. (3) This abnormal intelligence quotient once attained remains practically constant. In other words, this forced mental advance brings childish mentality to rest upon a higher mental level than would otherwise have obtained.

Further experimentation may modify or confirm the above conclusions and will certainly expose their causes. It now seems wise to expect that the pre-kindergarten field offers tremendous possibilities for psychological research, as

a result of which the teacher will soon not only find a better prepared group of youngsters to work with, but will have secured both insight and methodologies of incalculable value. Granted that individual differences exist when children enter school, pre-school experimentation must show why, to what degree, and what can and should be done about these variations.

Conclusion. Regarding the treatment of individuality by the school, there is certainly social worth in many of the variations we have discussed. On the other hand, the school seeks to give to all the members of the group much that will be good, and thereby to make them in certain respects nearly alike. In our zeal for the attainment of norms, attention should never be distracted from the individual needs, the special aptitudes, and emotional make-ups of our children. A true democracy in education demands that we give to each child an equal, hence never the same, opportunity to grow and develop. Such democracy demands insight of no low order. Education, then, consists in taking each child as he is, and helping him to become what he may and ought to be.¹

QUESTIONS AND PROBLEMS

1. How far should education be the same for all, and how far should it be modified so as to take proper account of individual differences? Where will the answer be found, in science or philosophy?
2. Enumerate some methods of taking into account individual differences of pupils in the kindergarten-primary grades, and indicate the methods you consider best.

¹ The writer has had the assistance of his associate, Gordon Hendrickson, in preparing this chapter.

3. Distinguish between the ideals of equality of opportunity and equity of opportunity.
4. For what apparent reason has nature made individual differences?
5. Should a gifted child be required to justify his I.Q.?
6. What factors may operate to prevent success in school?
7. How successful is the introversion-extroversion concept for differentiation of children? Select and describe a child of each type.

CHAPTER XI

MENTAL BASIS OF CLASSIFICATION

THE preceding chapter on the individuality of children has sufficed to show the obligation resting upon the teacher, both to know the individual differences of her pupils and to make it her business to do something about them.

Individualizing treatment. How may the school handling of children be individualized? In one of two ways:

First, a Mark Hopkins on one end of the log does furnish an opportunity, withal unsocial, for the desirable one-to-one relationship of the teacher with the pupil to be established. But society seems to clamor not for this 1 to 1, but rather for a 1 to 35-55 ratio. In other words, the Mark Hopkins of to-day has not a log; rather, a full-grown tree, with youngsters on every branch, awaiting his educational efforts.

Second — and because the above is impossible — some grouping of pupils must be effected which, while maintaining the mass formation to which all public education must adhere, will do a large measure of justice to the individual child. This arrangement can be accomplished by making the schoolroom groups so homogeneous or alike in capacity that the class range over which teaching must be spread is narrowed to that resembling the needs of a single individual. When further attention is given to individualized instructional materials (as in the Winnetka Plan), to supervised study, to maximum-average-minimum assignments, the ideal of meeting individual needs, and at the same time of

preserving the economies and values of group treatment, is approached.

Earlier chapters have emphasized the normal distribution of traits, notably those of intelligence. We shall now consider the classification problem as faced in the lower grades of the elementary school.

Critical status of the entrance problem. Considerable information is at hand regarding the composition of the army of children during the first years of school life. Certain more prominent facts are as follows:

(1) Contrary to common belief, and in spite of considerable progress in kindergarten education, only 12.7 per cent of children of four and five years of age in the United States, in 1922-24, were enrolled in kindergartens.¹

(2) Intellectual differences of great range exist during kindergarten years and before, and kindergarten experience does not reduce these differences to a dead level. These differences persist into the first grade and beyond.

(3) Attending kindergarten does not guarantee a pupil success in the first grade, nor does failure to attend condition first-grade non-promotion.

(4) First-grade children are failing in large numbers, since it is ordinarily true that, in the average city, twenty-five per cent fail to gain promotion at the end of the first year.

These and many other facts raise difficult questions. Should all children go to kindergarten? What should kindergarten hold for them? How should class organization

¹ Nina C. Vandewalker: *Progress in Kindergarten Education*. United States Bureau of Education, Bulletin 18. (1925.)

best be made up? What experimental results are at hand? Certain of these questions will now be treated.

REVIEW OF EXPERIMENTAL UNDERTAKINGS

High, average, and low-speed groups. Earlier tables (pp. 102-103) have shown the low mental ages of fifty-five repeaters in the first grade of a large city elementary school. When the entire group of the 210 first-graders employed in the study¹ was considered, mental ages were found as given in Table V.

TABLE V. MENTAL AGES OF FIRST-GRADE CHILDREN

MENTAL AGE IN YEARS AND MONTHS	NUMBER OF CHILDREN CHRONOLOGICALLY 5-10 OR OLDER	NUMBER OF CHILDREN CHRONOLOGICALLY LESS THAN 5-10
3-0-3-5.....	2
3-6-3-11.....	9
4-0-4-7.....	20
4-6-4-11.....	21
5-0-5-5.....	43
5-6-5-11.....	42
6-0-6-5.....	42	6
6-6-6-11.....	15	1
7-0-7-5.....	14	1
7-6-7-11.....	2
Total.....	210	8

Subsequent first-grade class groups were classified as shown in Table VI. This table shows that the median I.Q. of the IB-3 grade was somewhat higher than the median I.Q. of the IB-2 grade. This result is due to the fact that the children in the IB-3 grade were physically somewhat

¹ Zornow and Pechstein, *op. cit.*

TABLE VI. INTELLIGENCE RANGE OF IB GRADES, SEPTEMBER
1920, TO JANUARY, 1921

GRADE	RANGE OF MENTAL AGES*	RANGE OF I.Q.'S	MEDIAN I.Q.	NUMBER OF CHILDREN
IB-1.....	6- 1-7- 6	87-122	104	35
IB-2.....	5-10-6-10	75-104	89	33
IB-3.....	5- 7-8-10	79-101	97	27
IB-4.....	4- 6-5- 8	74- 91	86	32
IB-5.....	4- 8-5- 6	67- 87	78	32
IB-6.....	3- 8-4- 6	58- 73	69	12
	3- 4-7- 4	43- 98	88	14
IB-7 or pre-primary	3- 8-4- 6	59- 77	70	25

* No mental ages for ten children in IB-6 on account of language difficulties.

younger than those in the IB-2 grade. Actually the median mental age in the IB-2 grade was higher than the median mental age in the IB-3 grade. Heretofore it has been with mental ages rather than I.Q.'s that we have been concerned. The IB-6 grade was composed partly of a group of children concerning whose mental ability there was some uncertainty because of language or other difficulties, and partly of a group of late entrants of somewhat higher mental status who, because of the late start, could not be assimilated in the better groups. The IB-7 grade was made up of the lowest group of those concerning whose mental ability there was a reasonable amount of certainty. In this first so-called "pre-primary" grade IB work as such was not attempted. From the IB-1 grade at the end of the semester, twenty-eight children were promoted to the IA-1 grade, a select group which was to do the work of two terms in one. These children, whose I.Q.'s ranged from 100 to 122, were all to be above seven years of age mentally in June,

1921. From the IB-7 grade or the pre-primary group eight children were promoted to a regular IB grade at the end of the semester. The remaining seventeen were retained in the pre-primary grade for the second term.

After the grades had been organized, the teachers were asked how the children were accommodating themselves to the first-grade work. Only seven changes seemed necessary; that is, seven children who had been put in the first grades on the basis of the group test were later removed to some other group because of the individual test score and the teacher's judgment. In general, therefore, it may be said that the group test was of considerable help in the matter of classifying the children quickly.

In the final disposition of the children tested, thirty-one in the kindergarten, who were chronologically ready for IB work, tested so low that they were held in the kindergarten for another semester, while thirty-eight children were assigned to the pre-primary grades. Of the seventy-eight children who were in pre-primary grades, thirty-five were retained in the pre-primary; twenty-eight were assigned to the IB-x grade, a slowly-moving grade which requires three terms to do two terms' work; while fifteen went to regular IB grades.

Conclusions. From this study we may draw the following conclusions:

(1) A degree of homogeneity in the ability to do first-grade work has been obtained that heretofore was lacking in the same situation. Occasionally there is a misfit, and some replacements are necessary after a grouping has been made, but in general the teachers are agreed that much more may

be accomplished because all of the children are nearly on a par mentally.

(2) Nearly all of the children who have failed in the first-grade work were among those of low mental age and low I.Q. Those of at least six years' mental age and of normal I.Q. have uniformly been equal to the work of the first grade. The results would tend to show, therefore, that the Binet test is a reasonably reliable method of classifying young children.

(3) Since fully one half of the children who are chronologically six years of age are less than five and one half years of age mentally, it has seemed desirable to group these children in pre-primary classes. To some extent the limitation of these children may be one of language difficulty. In general, however, the difficulty lies in a lack of mental alertness. Since these children are slow to comprehend and slow to react, they need an abundance of drill on all work attempted.

(4) In every group tested has been found a small percentage of children of distinctly superior mental endowment. The segregation of these children in a select group makes it possible to give them more than the normal amount of work, and to develop in them the habit of working up to their capacity.

(5) Growing out of the intensive study of the mental ages of the kindergarten and first-grade children has developed the opinion that much discouragement due to non-promotion may be obviated through the use of the I.Q. as a basis of prediction of the child's progress in school. For more than one half of the children tested in the Susan B. Anthony

School, with an I.Q. under 90, slowly moving grades have been organized. Since it does not seem practical to provide slowly moving groups in every grade, the present plan provides them in alternate grades; for example, the first, third, and fifth. It is assumed that the child who has an I.Q. of 80 will advance approximately eighty per cent as rapidly as a normal child, and that it will take him from twenty to twenty-five per cent longer to complete the six elementary grades. We are not especially concerned with those children who have an I.Q. less than 75, for they will doubtless become special-class subjects. The majority of our retarded children have an I.Q. ranging from 75 to 90. It is thought that by placing mentally slow children in these slowly moving groups, partly on the basis of the Binet test and partly on the basis of the teacher's judgment, opportunity will be provided for bringing the mental age of each child up to the standard required for each new grade by the time he is permitted to reach it. Thus, by providing for four places for retarding children with low I.Q.'s — that is, a term each in the pre-primary, first, third, and fifth grades — it is expected that the mental age in the great majority of cases will reach the level required for the work of the second, fourth, and sixth grades taken normally. We are thus planning deliberately for possibly two years of additional schooling for children who have an I.Q. of 75 to 85, although no child will be obliged to take this additional period if it becomes at any time apparent that he is able to do the work at a normal rate.

We are not positive that our four-point location for retarding the children with low I.Q.'s is the best; only con-

tinuous experimentation and checking will solve our problem. We are also in doubt whether our findings now and later will signify much for elementary schools not confronted with our type of foreign problem. We are convinced, however, that the principle of slowly moving groups is sound from both a psychological and sociological point of view, and that it will go a long way in our type of school toward individualizing instruction and preventing retardation with the resultant habits of failure and discouragement. We believe, furthermore, that herein we are securing excellent educational returns with a minimum disturbance of the school organization, size of teaching personnel, standardized curriculum, and the school democracy which we seek to develop.

The X-Y-Z grouping. An earlier reference has been made to the intelligence ratings of 10,511 first-grade pupils examined by the Detroit First-Grade Intelligence Test (p. 99), in which pupils were classified in the X-Y-Z groups of superior, average, or dull respectively. Teachers who worked with these first-grade groups for a semester adjusted the educational process to the particular mentality level of their assigned group, and finally submitted reports regarding promotion, amount of work done, and other facts. The results of this very extensive effort at classification of first-grade pupils are sufficiently significant to warrant a lengthy quotation.¹:

¹ Berry, Charles S.: "The Classification by Tests of Intelligence of Ten Thousand First-Grade Pupils"; in *Journal of Educational Research*, vol. vi, pp. 185-203. (October, 1922.)

SUMMARY AND CONCLUSIONS

1. By means of a group intelligence test the pupils entering the first grade were classified with sufficient accuracy to be of marked help to the teachers. The accuracy of the intelligence ratings was confirmed by the judgment of the teacher in almost 70 per cent of the cases. Ninety-five per cent of the principals reported that the intelligence ratings were of sufficient value to justify their being given.
2. The pupils from non-English-speaking homes tested lower than those from English-speaking homes. Language difficulty accounts in large part for this difference.
3. Of the pupils who come from non-English-speaking homes, the Germans tested highest and the Italians lowest.
4. Mistakes in the classification of pupils by the intelligence ratings were corrected by the teacher, who was directed to shift to the proper group any pupil who in her judgment had been misplaced by the intelligence rating.
5. The classification of pupils by means of intelligence ratings greatly increased the interest of the teacher in the study of the individual child. This fact was brought out repeatedly in the reports of the principals.
6. Most of the principals favor the development of different courses of study for the X, Y, and Z groups.
7. It is essential that different methods of instruction be developed for the bright and dull groups, that is, for the X and Z groups. Within a few weeks after the pupils had been classified by the intelligence ratings the supervisors of the elementary grades began to receive urgent calls for assistance in the teaching of the Z pupils. The teachers now realized, doubtless many of them for the first time, that they had a large number of pupils who could not satisfactorily be taught by the usual methods. In order to meet these urgent requests the supervisory staff of the elementary grades developed a little book entitled "Toys and Games," which has been of marked value in the teaching of the Z pupils.
8. The parents make no serious objection to the classification of their children by means of intelligence tests as soon as they learn that the purpose of this classification is to give the pupil a better opportunity.
9. The X-Y-Z plan is merely one step in the direction of the individualization of instruction, the equalization of opportunity.

Fitting the school to the child. The recently published report¹ of an experiment in grading children in one of New York City's largest public schools — an experiment conducted over a period of years — shows facts duplicating the individualistic features already commented upon. As a result of the experiment in psychological classification, the following types of classes were established, showing how far a large elementary school may go in classifying so that homogeneity may obtain:

1. *Terman classes*, for very superior and gifted children. A specially enriched curriculum is provided, the skipping of grades by bright children is avoided. The eight-year course is covered, without skipping, in six years.

2. *Superior classes*, for children of considerably more than average intelligence. They have the regular curriculum, and usually complete the eight-year course in seven years.

3. *Slightly above the average classes*, for children able to do the same work, but a little more intensively than the average, and occasionally to make an extra term.

4. *Average classes*, for children who deviate but little from the normal.

5. *Slightly below the average classes*, for slower children who are not definitely backward. These children can complete the eight years in nine.

6. *Opportunity classes*, for children definitely backward but not mental defectives. This group is most in need of a special curriculum. A beginning has been made in adapting the curriculum to its needs. The registers are smaller than in the average classes.

7. *Ungraded classes*, for children much below the average in mentality. Here the curriculum has been completely made over by those in charge of the Ungraded Department.

8. *Neurotic classes*, for children who are not mental defectives, but behavior problems, who are temperamentally peculiar or in need of a period of study and adjustment.

¹ From Irwin, Elizabeth A., and Marks, Louis A.: *Fitting the School to the Child*. (Reprinted by permission of The Macmillan Company, publishers.)

9. *Classes for the physically handicapped*, including classes for children who are underweight and need special physical attention, and cardiac classes, for children of all ages who have heart trouble. Health is made the center of the curriculum. Home visits and mothers' classes are used to get necessary attention to construct health habits.

10. *Foreign classes*, for children of families newly arrived in this country. These classes were instituted in response to the need which arose when immigration was renewed after the war.

The experiments presented above emphasize the foundation steps in mental classification. When such classification is made, the teacher has a fair chance to do justice to the individuals assigned to her particular group. Only under some such establishment can she hope for a large measure of success in her teaching. Better classification brings both her and her pupils greater opportunity.

Influence of kindergarten attendance on grade progress. We have long assumed that the kindergarten prepares children for primary work. Just how effective such preparation is may well be questioned. The following liberal quotations give the customary setting.

Children in kindergarten do not need the primary tools as much as they need the experience which will give them basic information for the tool subjects and which will stimulate an interest in them; therefore through furnishing many vital experiences and helping the children to organize them and relate them to their fundamental interests and previously established ideas, the kindergarten provides primary school arts.¹

The problems of pre-school hygiene and of school entrance are inseparable and both are in turn inseparable from the kindergarten. The whole matter of school entrance is in last analysis one of hygiene. It should be conditioned primarily by standards of

¹ Waite, Mary G. How the Kindergarten Prepares Children for Primary Work. *School Life*, 1923. Quoted by permission.

health and development; and should be regulated by a policy of medical oversight and educational observations.

The social and constructive activities of the kindergarten give fine scope for this very observation which is needed if we are to regulate school entrance. Through them we can discover the superior, the balanced, the inadequate, the unstable, the infantile, the speech defective, and all the exceptional children who need a specialized educational hygiene and readjustment of procedure as to school entrance. Such a policy of intelligent observation of the children is not incompatible with the program of the progressive kindergarten of to-day. It simply gives to these programs a double trend, one which is educative and another which is interpretive. Such a policy will inevitably lead to a hygienic rationalization of school entrance. The kindergarten will become the recruiting station and the development battalion of our vast school army.¹

Several experimental studies throw light on this question. An efficiency expert of the Kansas City public schools, who made a study of 3000 children just about to enter high school, found that of the total number the 1500 who had had kindergarten training were, on the average, three months in advance of those who had not had kindergarten training. Such actual statistics justify conclusions regarding acceleration and argue for the kindergarten as an economy device. Bell at Louisville, Peters in California, Webster in Minneapolis, Root in Pittsburgh, and others unite in concluding that:

Children trained in the kindergarten can make the same progress as older children not so trained, all other things being equal. It follows logically that a kindergarten group will proceed faster than a group of the same age and intelligence who have not had kindergarten training. Therefore the kindergarten expedites school life. Intelligence being constant, kindergarten training makes it possible

¹ Gesell, Arnold. *Kindergarten Control of School Entrance. School Life*, 1923. Quoted by permission.

to meet the first-grade situation at an early age. When we are able to control the age factor the gain will show directly in educational progress in the elementary grades.

In commenting on this study, Dr. William T. Root, of the University of Pittsburgh, makes the estimate that a kindergarten teacher at a salary of \$1000 a year saves the State \$6400 future wages with each class of twenty-four children that she teaches.

An interesting study of the influence of kindergarten training on achievement in reading (Gard) provided silent-reading tests for kindergarten and non-kindergarten trained pupils in Grades 3 to 6. Superiority of the former was shown, both for reading skill and intelligence. Whether the kindergarten group was a superior group and its superior reading ability therefore attributable to its superior native capacity or, *per contra*, whether the kindergarten training itself had a direct positive influence upon both the intelligence examination and achievement in silent reading, is not clear.

The recent work of MacLatchy¹ throws some light upon the question. A total of 1596 first-graders from eight Ohio cities were studied. The kindergarten children in the group averaged 2.4 months younger than the pupils in the non-kindergarten group; they also surpassed the non-kindergartners at the beginning of the school year by almost five months of mental age. At the end of the year a battery of short tests—spelling, reading, word recognition, and arithmetic—was given, with the result that the non-

¹ MacLatchy, Josephine: "The Influence of Kindergarten Attendance on Progress in Grade I", in *Educational Research Bulletin*, vol. III, no. 17.

kindergartners excelled rather strikingly in total score, but specifically only in spelling and arithmetic. The writer agrees with Gard in finding a positive influence on achievement in silent reading. Yet

the case for the alleged superiority of the kindergarten pupils is not conclusively proven. The comparison of the median ages of the kindergarten and the non-kindergarten groups, concerned in this study, agrees with the findings of earlier studies since the kindergarten group is by its median age over two months younger than the non-kindergarten. The kindergarten group begins the year with a superiority in intelligence-test scores equivalent to five months as reckoned by the mental-age norms of the test. The kindergarten group is superior in scholarship when judged by teachers' ratings; but when both groups are judged by an attainment test, the non-kindergarten group shows a slight superiority.

This is a rather unexpected conclusion in view of the other findings in this study and of the prevalent argument used in favor of kindergarten education.

General attitude toward school entrance and classification. Even though it appears that one cannot accurately make sweeping claims for the effect of kindergarten training upon first-grade success, perhaps it is not too much to expect that first-graders, trained in a kindergarten closely articulated with a reorganized first grade, will enter far better prepared for first-grade work than if they had not been trained in kindergarten. This prophecy implies a new type both of first grade and kindergarten. Given boys and girls getting their start in a proper kindergarten, or even an earlier unit; given a closely articulated primary grade, having more in common with this new kindergarten than in difference; given the practice of holding in, or advancing from, kindergarten to a large degree dictated by mental tests; finally,

having children rated in homogeneous mental classification for instructional purposes — these are guarantees that the school is giving each child his own best place to learn, to respond, to execute, and hence to grow.

QUESTIONS AND PROBLEMS

1. List and discuss such major purposes as you believe the modern kindergarten may be expected to serve.
2. What have been the causes delaying the kindergarten-primary fusion? Why have these largely become dissipated?
3. Is there ever any justification for literally failing a pupil?
4. Suggest reasons why kindergarten experience has seemed upon subsequent grade testing to be less an asset than had previously been believed.
5. Where does the fault lie for the twenty-five per cent fatality of typical first grades?
6. What valuable factors of both the old-fashioned first grade and the isolated kindergarten should be united in a modern unified program?

CHAPTER XII

EDUCATIONAL AND MORAL GROWTH

THE foregoing chapter has emphasized the classification of little boys and girls into groups so well balanced that each little member lives with, and competes with, his peers; not his unequals. It has been argued that psychologically determined ability groups make both teaching and learning easier, more effective, and happier for all concerned. Yet is there something more to be considered in the matter of proper classification and proper social living than mere pupil efficiency?

The moral factor. From the early days of Froebelian philosophy, the kindergarten has laid claim to moral development as one of its important, probably its most important, function. Coupled with this aim has been the beautiful, if alleged sentimental, thought that all children are good at heart, with this innate goodness striving to express itself in proper conduct. These highly commendable traits helped to evolve unity with one's self, the objective world, and the divine principle or God.

Modern scientific psychology is frowned upon as a foe to the alleged sentimentalities of the so-called kindergarten type of mind. As it was suggested in an earlier chapter, even the philosophical background to modern child psychology seems well on the road to oblivion. Yet perhaps something may still properly be said for the moral or character-building function of the kindergarten; perhaps

even the ridiculed concepts of Froebelian charm may, if restated and modernized somewhat, carry values which even a modern scientific era finds serviceable.

Sentimentalizing vs. psychologizing in the field of morality. With due apologies to the scientifically minded reader who has followed the earlier pages of this book, let us turn our attention to a text (Zechariah 8:5) pregnant with sentimentalities: "And the streets of the city shall be full of boys and girls playing in the streets thereof."

Superficial view of play. The above quotation offers every desired opportunity to be psychologically trite and to deduce the obvious. Taking one's cue from the statement barren of context, one merely sees a reference to the city and its children. The writer envisages normal children playing together, both boys and girls (co-education). Also, the streets, parks, and other open places, made proper and fit for children to play thereon, constitute proper educational sites and possess educational values. Again, emphasis may be made upon the proper use of leisure and training children in such habits of enjoyment that they will know how to employ properly their leisure time, either as children or adults. Back of all is the lurking thought so dear to kindergartners that play is a basic instinct, a sort of neural mechanism geared to go whenever the restraining pressure of society is removed; that this mechanism, properly oiled, greased, and guided, possesses unlimited educational value; that it is, so to speak, just what is needed to enable education to realize its ideal.

Critical view of play. Yet play viewed as a definite neural organization or tendency has little place in modern psychol-

ogy. It was omitted from the list of basic tendencies in the chapters on instinct and emotion. Not definable in terms similar to rage, fear, and love, and not assignable to definite stimuli, it has had a checkered career since the day when Froebel first dreamed of a kindergarten where children were playing naturally together. Is play rather to be viewed as an attitude of mind where the individual has agreement between what he wants to do (inner) and that which is before him to be done (outer)? Is it as a state of mind anything different from literally giving one's self to the task at hand?

To continue in sentimental vein, perhaps the prophet was referring no more to a narrow view of play than he was to a physical city — a Jerusalem or Cincinnati or Chicago of brick and stone. Perhaps — and reading the context seems so to suggest — the holy prophet was seeing not a terrestrial but a celestial city; one not made with hands, eternal in the heavens — a new Jerusalem. And perhaps in this city — a real spiritual city — he envisaged boys and girls playing together.

The mental kingdom. Our age is markedly scientific, and physical existence is so much more real than the spiritual. Yet are not children and all of us at work building a spiritual city, one that is subjective and personal, one that finally becomes a worthy abiding-place for man "in the image and likeness of God"? It has been well said, in answer to an inquisitive man, that "the kingdom of heaven is within you." From earliest days children are at work experiencing, living, building; each thought and act adds to the structure; the spiritual city must grow, because growth is the essence of life. Yet this growth may be good or bad, noble

in pattern or debased. And the prophet, sentimentalist that he was and that so many thousands of his unrecognized followers have been, said that, in the true spiritual city of good, "boys and girls were *playing* in the streets thereof." Spiritual building through freedom of activity — such is moral growth.

Building character through free activity. The above exposition probably serves to emphasize certain factors judged basic to character-building; that is, to the building of this inner spiritual abiding-place of truth:

(1) Growth comes through group life and the interaction of its members. No growth appears in isolation. Character does not live *in vacuo*. This type comes not by prayer and fasting, but through action.

(2) Growth comes when boys and girls have the freedom, the play opportunity or attitude, to work upon such ideas or projects as seem worthy to them, and to assume responsibility for carrying these out.

In a condition of normal group living it is held that problems worthy and needing solution arise naturally; that individual and group needs are touched, and that inner energies are naturally released at maximum strength for accomplishing the object deemed worthy by the individual and his group. Play means freedom and initiative, not repression or license; for neither of these attitudes can live in a normal group atmosphere. Individual liberty operates under law, which grows out of the group's experiences and its broader estimate of the common good.

The task of getting children to play properly. What agencies are at work in encouraging children to grow morally

— that is, to play properly, to build spiritually? The task is nicely and appropriately shared.

(1) *The share of nature.* Inheritance goes a long way to further the task of moral education. Nature gives capacity or potentiality for learning. If one is slighted herein by nature, and idiocy or imbecility should result, moral growth is severely handicapped. Nature bestows the instincts of emotion — love, altruism, sociability, negative self-feeling, fear, wonder, sympathy — which energize and crystallize gradually into those permanent modes of response that we call the attitudes, sentiments, and ideals. Lastly, nature provides the basis for reason or intelligence, without which moral judgment could not be attained. Nature plays a heavy part in endowing the individual potentially moral.

(2) *The share of society.* Some critics of modern life bewail the apparent fact that society is not more actively at work in educating for character; yet society, by the basic way it is organized, is already playing a significant part in the process. Through it the child discovers his *self* and begins to build his several selves — social, religious, business. Group influences of many sorts constantly operate upon the child, and the group's language, lore, and traditions become his. Certain institutions, notably the family, and, next to it for character-building purposes, the institution of work, are established, in which each must play a part. Cross-cutting influences, such as art, literature, and music, are active. Finally, society establishes definite and positive rewards and penalties, no less effective upon the adult than upon the youngster about the house.

(3) *What is the individual's share?* There is left to the

individual the final and definitely conscious element of morality — the matter of choice. Inheritance gives potentiality for moral growth; society furnishes locus and direction; morality finally becomes personal to each — each must judge and weigh, and finally consciously pursue ends evaluated and found socially acceptable.

Returning to our point of departure, how easy it is to see that, in normal group activity opportunity is generously furnished for the individual to grow morally. Here he is allowed proper freedom, not held under illogical and cramping restraint. Here he learns to *do* and *be* through the doing, not by receiving lectures and sermonettes. Here, although in the mass, he is not taught as one of the mass, but contributes his individual share to the project or activity upon which the mass is engaged. This is expression, not suppression; freedom, not restraint; play, not work, except as by work is meant the fullest and most strenuous participation possible in the task judged and found personally worthy.

All the above suggests, as psychology, the matter of need, motive, instinct, project, and self-created activity. Of such and upon such is the modern and scientific educational handling of children built. Whether in learning that c-a-t spells "cat," and that $2 \times 2 = 4$; or in learning the principles of honesty, kindness, truthfulness, reverence, sympathy, co-operation, steadiness, reliability, and the rest of the virtues as one lives through the situations normal for developing such, one and only one formula becomes psychologically justified — "Zestful social living under wise guidance."

And the above formula likewise suggests, as sentimentalism of at least a near-philosophical sort, that children living

normally together, raising and solving problems appropriate to them, are, through letting the *inner* become *outer*, gathering and building, not for the task of the hour only, but for the permanent inner structure which we have called their city, their spiritual city within, wherein truth and love can permanently abide. And boys and girls, playing together, build permanently and well. Teachers, parents, and others may guide; but the children do the building; their heaven, or hell, is here and now with them, as they build.

So we must have faith in our children, and believe them worthy to build personally and rightfully. Granting freedom and at the same time withholding our trust is strangely contradictory. Then, with our faith equaled by our love, let us help them to be their true selves. Of such is the kingdom of heaven.¹

QUESTIONS AND PROBLEMS

1. Does modern psychology recognize a moral or religious instinct? What basic instincts may be said to have real value for purposes of moral education?
2. Try to distinguish between morality, religion, character, conscience, and personality.

¹ The reader is respectfully referred to the appended references of Edwards, Waddle, and Norsworthy and Whitley for detailed accounts of the exact psychological nature of the moral and religious life of children. The writer of this chapter has, perhaps unwisely, striven to present a less commonly met, and perhaps less well understood, phase of the topic. He will shortly publish a more orthodox treatment in a text entitled *Psychology and Methods of Character Education*. If he seems in the present chapter to have left the scientific level upon which he had been standing, perhaps a little justification may be found in his hope of touching the thinking of that noble army of loyal kindergartners who are feeling — quite improperly he believes — that, in these latter days of scientific advancement, something almost priceless is being lost by the way. Yet nothing good is ever lost, for only error departs.

3. Look up various definitions of the term "project." Can you distinguish between a "project" and "project psychology"?
4. What new facts, factors, or principles are injected into the character-education function of the school not included in its other educative functions, for example, teaching arithmetic or history?
5. Does psychology need a philosophy? May psychological data be accepted (for example, behaviorism as a methodology), yet rejected as a philosophy?
6. Which of the three factors mentioned (p. 164) is most important for moral development?
7. Can morality be taught? How?
8. Does the psychology of religious beliefs, for both children and adults, involve anything more than the extension to a divine focal point of the various mental developments secured through experience upon a human social level?

SELECTED REFERENCES FOR PART III

- Coe, G. A. *Law and Freedom in the Schools.* (1924.)
- Dewey, John. *Human Nature and Conduct.* (1923.)
- Edwards, A. S. *The Psychology of Elementary Education*, chap. XII. (1925.)
- Groves, E. R. *Personality and Social Adjustment.* (1923.)
- Haggerty, M. E. "The Incidence of Undesirable Behavior in Public School Children"; in *Journal of Educational Research*, vol. XII, pp. 102-22. (September, 1925.)
- Irwin, E. A., and Marks, L. A. *Fitting the School to the Child* (1924.)
- Kilpatrick, W. H. *Foundations of Method*, chaps. XIX-XX. (1925.)
- Neumann, H. *Education for Moral Growth.* (1923.)
- Norsworthy, N., and Whitley, M. T. *Psychology of Childhood*, chaps. XIII, XIV. (1918.)
- O'Shea, M. V., et al. *The Child: His Nature and His Needs*, chap. V. (1924.)
- Pechstein, L. A., and McGregor, A. L. *Psychology of the Junior High School Pupil*, chaps. XII, XIV, XV, XXIII. (1924.)
- Sayles, M. B., and Nudd, H. W. *The Problem Child in School.* (1925.)
- Terman, L. M. *The Intelligence of School Children.* (1919.)
- Waddle, C. W. *An Introduction to Child Psychology*, chaps. IX, X. (1918.)

SECTION II
APPLIED PSYCHOLOGY OF
THE KINDERGARTEN-PRIMARY CHILD

PART I

CHILDREN'S NEEDS AS A BASIS FOR SCHOOL ORGANIZATION

CHAPTER XIII

MAJOR GROUPS AND GROUPS WITHIN GROUPS

The early school years. Starting a little child in school is an event of no small importance, not only to the child himself, but to the family, and to the State as well. Throughout the country the general practice is to permit him to enter the first grade at the age of six, attendance not being compulsory until eight, while in a growing number of States kindergarten attendance is optional at the age of five in the larger communities. A few States are making attendance at six compulsory so that children shall not be retarded by late entrance.

As a result of the pre-school movement, greater recognition of the critical value of the early years is coming. Training in desirable habits and attitudes ought to begin early. Scientific study of these early years may bring about profound changes of practice in our school systems. The time may come when compulsory school attendance from the age of two or three years will prove the wisest investment of the State. The pre-school, kindergarten, and early primary grades deal with a single stage of development, and future practice must make the most of this period.

Individual differences in children entering school. The birthday age is the open sesame to school entrance. Appre-

ciation of the fact that childhood in itself has many ages — for example, physiological, anatomical, social — helps to account in part for many of the differences in the entering group. Any teacher can easily discover gross differences in maturity, in social qualities, and in intelligence, as well as the presence of certain physical handicaps. Whether we consider the kindergarten or the first-grade entrants, these differences exist, although the first grade deals with the larger numbers. The custom of grouping children on the basis of ability is growing rapidly. In some of our large cities older teachers have reported that it was formerly the common practice to seat the immature children at the back of the room and pay little attention to them the first year, since they would undoubtedly be repeaters anyway. However at present, careful study of their needs is made and flexibility between groups provides for differences in rate of development.

Intelligence as a guide in grouping. Group intelligence tests now make it possible to supplement the teacher's judgment and form groups which will work together to the best advantage. In making these groupings, maturity and social adjustments need also to be considered. An immature or non-social child may gain more rapidly for a time by being in a group where the children are somewhat below his intelligence level. An alert teacher will try out such a child in different groups until she finds the one in which he seems to fit best. Each child should at all times be so placed as to receive the greatest help from the children in his group, and to give the largest contribution that it is possible for him to make.

In the larger schools each main group may be in a room by itself, one teacher dealing with the superior group, another with the normal, and a third with the slow group. Early segregation of the true subnormals is desirable, although it is an extremely difficult process at this stage. When a teacher is making scientific studies of a certain type of group, it may be wise for her to continue teaching that type for several years, but, on the other hand, the practice of rotating teachers among the groups from year to year has many advantages.

The desirability of the principle of careful grouping in the smaller school also is unassailable, giving the individual teacher greater freedom in her task, since children work to better advantage under such conditions.

Individual and social development. The whole question of training children as individuals and as members of social groups is to-day very much in evidence. The child develops first as an individual, the sense of personality being discovered very early. We have assumed that upon entering the kindergarten he was ready for training as a social being. The experience of the nursery schools seems to indicate that the younger child craves social relationships, and has failed to make them chiefly because of lack of opportunity. So, too, several of the new types of schoolroom organization, notably the Winnetka and the Dalton plans, stress individual progress in the formal school subjects. There is need for careful scientific observation here to discover under just what conditions a child works best as an individual, as a member of a small group, and as a member of a large group.

Larger groupings for social experiences. The children in

a room under one teacher form a natural large group because of their common abilities and the many experiences they may have together. Morning exercises, the circle games and conversations, enjoyment of songs and stories, the delight of simple festival occasions, all belong here. Such activities must be suited to the hygienic conditions of the room and to the interests and attention-span of the children. Many difficulties arise because teachers fail to recognize the fatigue which comes when such group exercises are prolonged beyond the attention-span of the children, leading them to become a group of wrigglers. Gradual development of a community of interests is a matter of months. Children from the nursery school show this training when they enter the kindergarten, kindergarten children carry it over into the first grade, while the second-grade child understands group behavior very well.

Auditorium periods which bring the children together in still larger groups are undoubtedly valuable, for where the whole school comes together, a sense of belonging is cultivated. Contact with older pupils is reciprocal in its advantages. To take part in a program intensifies the valuable feeling of worth. Too often, however, the little ones are crowded together in uncomfortable quarters and held during long programs, only part of which are suitable for them. Whenever a class is taken into the auditorium, careful planning should be given to making the experience valuable from start to finish.

Small groups to meet individual needs. Children themselves form many small groups when working out their projects. Leadership is shown naturally at such times, a

wholesome sense of comradeship arises, and the individual learns to subordinate himself to the group.

Careful study of varying rates of progress in mastering reading, writing, and number work shows how essential the small group is in order to keep each child working at his maximum. When the teacher works with from three to eight children intensively, she can find their difficulties. At times individual attention may be a necessity, but it is doubtful whether we know definitely as yet under just what conditions it is best. Children help one another in so many ways that we hesitate to use too much individual teaching.

Differences in past and present practice. Whatever individual differences exist to-day existed also in the past. Teachers in the older period were conscientious in working with children who had difficulties, but there seemed to be a general feeling that any help given must be given outside the regular school hours. Training in the social qualities of co-operation, leadership, and initiative was not recognized as necessary. The child needing special help was dealt with at recess or after school, adding to his own and to the teacher's strain. Social development came by chance.

The present tendency is to study the whole situation in the light of general likenesses, individual differences, and needed social adjustments; to provide so far as possible for these in the larger organization of the school system; then to conduct each schoolroom in such a way that desirable tendencies are awakened and developed. Continued scientific study of the problems involved will lead to increasingly intelligent practice.

QUESTIONS AND PROBLEMS

1. At what age does school attendance become compulsory in your State? What is the law of your State regarding the establishment of kindergartens?
2. Find the kindergarten, first-, second-, and third-grade registration for one school in your city. Find the average daily attendance for each for one month. Try to account for the variations.
3. Examine a group intelligence test prepared for young children. What basis have the children for answering each question?
4. Observe a young child for parts of several days: Note the occasions in which (a) he remains alone, (b) he joins a small group, (c) he joins a large group, (d) he leaves a group. Can you draw any conclusions from his behavior?
5. List five signs of fatigue with which the teacher should be familiar.
6. Procure the results of some simple physical or mental test, given to a class of children. Arrange the results to show the range of individual differences, that is, the distribution of abilities as shown by the test.

CHAPTER XIV

THE SCHOOLROOM: ITS FURNISHINGS AND EQUIPMENT

The charm of a dynamic schoolroom. A modern schoolroom filled with busy, happy little children is a charming place. To provide the best environment requires much careful study of the children's interests and activities. Fresh air and sunlight, properly controlled, are the first essentials. Cleanliness and artistic surroundings, comparable to those in the best homes, are also necessary. Furniture and equipment are gradually becoming standardized. It should not be difficult to convince architects and contractors that blackboards and coat-hooks must be fitted to the children's height. The rigidity of the traditional schoolroom is being replaced by an atmosphere of suitability, of fitness to purpose. Surely, no place should stand more clearly for progressive development, for dynamic quality, than a schoolroom.

Creating the schoolroom through daily activity. The use which pupils and teacher make of a schoolroom and its furnishings and equipment is the determining factor in making the schoolroom efficient. Only as we watch the activities in progress throughout the day and from day to day can we judge the values which the room itself affords or denies. The creative genius of some teachers has always been able to transform conditions which have baffled others. When the teacher realizes that by working with and through

her children the real schoolroom will grow, she may plan to make every step in the process truly educative.

This point of view does not, however, excuse the administrator for tolerating poor conditions; rather, it puts upon him the responsibility of studying needs through the experiences of the children and teachers. Every condition in the room, every piece of furniture and equipment, every bit of decoration, must meet the test of fitness to the needs of the children. On the other hand, every need of the children should be met by adequate furnishings and equipment.

The children themselves always respond joyfully when opportunity is given them to make the room more truly their own by joining in making improvements. Are the walls dingy? An attractive border or a big poster may brighten them. Is there a forlorn corner where dust and papers collect? Possibly that is where the new bulletin board or the screen to display work will be most effective. Does the teacher's desk accumulate so many things that it grows disorderly? A relay of caretakers may put it in order between periods. The rearranging of movable furniture for a specific purpose may provide a tinge of adventure.

Things old and new. A young teacher, given a dilapidated room in an old building, enlisted her pupils in getting rid of accumulated rubbish in the big cupboard. The neat piles of books and supplies which finally found room on the shelves appealed to their natural love of order. When fresh curtains and growing plants finally were placed at the windows, one youngster said appreciatively, "Why, you're just like a mother making a home."

Another young teacher in the most forlorn of rooms not

only found many ways of improving the room itself, but with her children's help made the little cloakroom into a charming little playroom, into which groups of three or four children went from time to time during the day to enjoy a type of freedom in play unknown in their tenement homes.

But it is not only in old schoolrooms that this magic touch is needed. However modern and attractive the surroundings may be, only when the children, with the teacher guiding them, have expressed their personalities in arrangement and decoration, is the schoolroom truly theirs. The best type of schoolroom, like the best type of home, is a growing entity with a place for things both new and old.

Furnishings which fit into activities. Size of class and type of work must ultimately determine many points, both of building and furnishing. The change of slogan from "A seat for every child" to "A seat for every child when he needs one" is indicative of this new point of view. "What type of seat shall he have?" may well be asked. The kindergarten has always emphasized the need for more space, and the nursery schools as well are also pointing to its necessity. Surely the primary children should have space enough to work and play together without overcrowding.

In order to make the most of the space provided, tables and chairs seem to be the most sensible type of equipment. The kindergarten has always used them. The tables should be of different lengths and heights, the chairs of two or three sizes, in order to provide for children of varying heights. Rubber tips help in securing quiet movement. Desk-chairs have some advantages over tables and chairs. They contain a place for storing material, and are most carefully planned

from the hygienic standpoint. Their heaviness, however, keeps many teachers from having them moved as frequently as the children's needs dictate. The immovable desk must go, so far as primary grades are concerned, unless adequate provision for play space is made in other ways. In old schoolrooms the teacher can frequently persuade her superintendent to have half of the immovable desks removed, even if he cannot or will not make a complete change.

Much has been done to encourage the use of the larger muscles by very young children. Montessori planned equipment to be used in climbing, balancing, and stretching. Climbing-poles, rings, horizontal bars, and slides have found a place in some of our kindergartens. Nursery schools allow the use of kiddy cars and other toys which bring large muscles into use. We think of these activities as separated from the primary schoolroom, or as amply provided for in rhythms and games. We think of the apparatus as belonging to the playground.

More experimentation should be conducted in this field. If inviting apparatus were present and its use approved, would not the primary child turn to it frequently in his free periods? Would he not return with greater zest to his more intensive work after a good stretch or climb? To what extent would the dull group profit by this type of activity? No one questions the value of the physical relief. The practicability of providing and using apparatus of this type in the average primary classroom is, however, often in doubt. Ample playrooms and playgrounds freely used would remove this consideration.

Use of the floor as a place for working and playing may

well be more common. The sense of security and freedom which children feel when they are permitted to utilize it must be very great. Certainly when they are left to their own devices they relax upon the floor constantly and assume various postures, stretching and moving about freely.

The simple painting of a circle on the floor gives definiteness to the group whenever the members need to face one another. Whether or not we accept the symbolic meaning of the circle, we must admit that no other group arrangement permits all members to see one another's faces.

A sand table, a work bench, a library table, and a bulletin board are all essential in a primary room. The sand table has proved its adaptability to the expression of children's ideas for a number of years. Use of the work bench is more recent, and grows out of the discovery that children can use wood to advantage in some of their projects where the simpler processes of sawing and hammering are all that are needed. The library table fills the need for giving all children adequate opportunity to browse around among picture books and story books as the fortunate child does in a cultivated home. Satisfactory display of children's papers and the social use of certain phases of reading make the bulletin board or screen very desirable. The easel is an addition most helpful in art expression.

Observation of living things, combined with the enjoyment and development which come from responsibility for their care, suggest growing plants and pets, especially such forms of life as can be observed when making profound changes. A bowl of goldfish will afford one type of experience, a bowl of frogs' eggs will give a very different type. A

fernery brings enjoyment for a long period of time, the seeds planted in egg-shells in the sand table show rapid transformation.

One or two well chosen pictures may have a permanent place on the wall. They should be chosen with reference to the children's love of other children, of animal life, of motion and color. An occasional schoolroom has an appropriate frieze or cast. Too many rooms, however, contain pictures which have no child appeal, but which have hung in them from time immemorial. These should be banished. The modern teacher gathers a goodly supply of pictures for temporary use. These should be removed as soon as their purpose is served. Commercial machines are now provided with special sets of pictures for use in the kindergarten and primary grades. The class is fortunate which has access to such treasures.

So too the various devices for reproducing music have rolls and records especially adapted to young children, and no primary room or kindergarten is completely furnished unless it has such music for at least part of the time. The delightful contribution made by the piano, again and again, during the kindergarten program, may be partially matched in primary grades by the use of the victrola.

Materials and their care. Orderliness is a virtue which teachers are supposed to develop in their pupils. The most difficult phase of disorder with which teachers have to cope arises out of the increased variety of materials with which the children work, and the failure of architects and administrators to provide suitable storage space. The getting out and putting away of materials may be the basis of fine

training, but this means ample room within the reach of the children themselves. The teacher should approximate an even course between confusion on the one hand and fussiness on the other.

Three main types of materials are needed in dealing with young children: those which lend themselves to manipulation; those which are used in creative construction; and those which help in teaching the three R's.

To the manipulative type belong the Montessori materials; the beads, peg boards, and weaving mats of the kindergarten; certain toys, such as balls and carts; and such unstandardized materials as beans, toothpicks, and shoe pegs sometimes suggested for use in primary grades. There is nothing of the personal element involved in the use of these materials from day to day. They appeal to an immediate need and may be gathered and stored in any convenient fashion, as long as the storage arrangements are within reach of the children. Children should be trained to procure these materials and to put them away in orderly manner.

Materials used in creative construction include clay, blocks, weaving and sewing materials, and such toys as dolls, toy animals, and house furnishings, which fit into the projects worked out by the children. These need storage space similar to that of the manipulative materials before and after their use in projects. But it is space for the individual children to use for their projects which seems most difficult to obtain. Among the greatest values of the project method are the variety of activities undertaken and the continuity of activity required to carry a project through to a worthy end. Much more can be accomplished along both these lines if

each child has the necessary space in which to keep his project in between times.

The crayons, pencils, drill cards, games, and puzzles used in teaching the three R's may be stored as are the manipulative materials. Sensible provision for the care of young children's papers has seldom been provided. As long as each child had a permanent desk, tradition permitted him to keep his own papers in it until enough desks became untidy to warrant a general house-cleaning. Then everything was consigned gayly to the waste-basket.

The value of the child's paper to himself, to the class, and to the teacher should determine whether it is taken home, mounted for display, or filed for a record of progress. Provision for this filing should be more adequately planned for. A folder for each child's work, to which he may or may not have access, might save much confusion and preserve papers in better condition.

The care of lead pencils has always been a big problem for the young teacher, but fortunately the present low price of excellent pencil sharpeners has done much to reduce her difficulties. Such a sharpener should be in every room. Some supervision of its use is necessary, but as soon as possible this duty should be delegated to reliable children. The collecting of pencils immediately after their use will do much to prevent accidents, and a reserve supply to which ready access is not permitted will insure ease of mind on the part of the teacher. As long as children are active and pencil points brittle, a wise "preparedness" will be necessary.

The teacher's desk. While the teacher was considered the only guardian over supplies, her desk was a very im-

portant affair. Indeed it was frequently symbolic of her authority, and was given the most conspicuous place in the room. Now that the teacher mingles with her children more and shares responsibility for materials with them, it becomes a question of how large a desk she needs and where it should be placed. Some teachers find a small table with a single drawer adequate for their special needs, this table being placed inconspicuously at the side of the room. A few books, a bit of pottery, and such plans as must be consulted quickly may furnish the top, while the drawer holds the register, attendance blanks, and other records. Money should always be kept under lock and key.

Standards of room orderliness. Many teachers are bewildered by the changed conditions brought about by greater use of materials in the schoolroom, and wear themselves out trying to keep everything "picked up." Often this strain results in scolding and nagging the children.

Part of the time the school is a workshop, and at such times tools, materials, and waste scraps will naturally be much in evidence. Part of the time it is a place for rhythms and games. Then open spaces must be provided. Again, it assumes an air of festivity for some special occasion. The recurring question which the teacher must ask herself is: "How well is the room at this particular time adapting itself to the activity which is in progress?" But the room should always suggest active cleanliness, deliberate planning; there is no excuse for the slip-shod and the slovenly in an educational environment. A usable room with elements of harmony in color and form, the whole adapted to little children, will surely reflect the personality of the teacher.

QUESTIONS AND PROBLEMS

1. Send to The Society for the Prevention of Blindness, 120 East Twenty-Second Street, New York City, for a report on proper lighting. Measure a schoolroom by its standards.
2. To what extent are the recommendations of the National Council of Primary Education as to furnishings and equipment followed in your primary schools?
3. Collect ten pictures of schoolroom and home interiors. Which of them represent static conditions, an atmosphere of finished results? Which show dynamic conditions, an air of something in process of completion?
4. Visit a primary schoolroom and list the furniture and equipment as (a) well adapted to children's needs, (b) partially adapted to children's needs, (c) not adapted, should be discarded, (d) no equipment to meet a given need.
5. Watch the reactions of a class of children when listening to a victrola record. What conclusions can you draw as to the results?

CHAPTER XV

THE DAY'S WORK REPLACING THE STEREOTYPED PROGRAM

Necessity for a program. Accomplishment is essential in every schoolroom. Unless children make progress, their teacher is not fulfilling her function as a teacher. Economy of time and effort require that there shall be some sort of orderly procedure so that definite progress will be assured. Unfortunately, much work in program making has been carried on from the standpoint of the subjects of study, but not from the child's point of view. The newer development which is in process endeavors to have the children's purposes determine as largely as possible what each day's procedure shall be. The teacher supplements when necessary, so that essentials are not omitted. In order to get away from much that is stereotyped, the term "the day's work" is suggested by a committee of the National Primary Council.

Contrasts between the new and the old. Participation of the children in planning each day's work is a marked characteristic of the newer point of view. Each morning children and teacher plan what shall be done during the day, and a brief outline is written on the board when the major points have been determined. This announcement has a twofold effect: it means that the children approach each type of activity with intelligence and expectation, and it trains them in planning their time definitely.

Flexibility from day to day is another valuable phase of

the program considered as a day's work. With the wealth of material and variety of work now available, this is most desirable. Under the fixed régime a teacher often felt called upon to apologize if she was varying from the printed schedule, no matter how important the variation. When each day evolves its own plan, there is no expectation of a cast-iron routine. Yet there is definiteness in the newer method of approach.

Long, general periods appear on the newer programs in marked contrast to the five-, ten-, or twenty-minute periods of the older ones. Within these longer periods there may be given certain briefer bits of work, but the latter are subordinated to large purposes. The rhythm of fatigue is less apparent, since motivated work arouses new energies.

Freedom of atmosphere, with the teacher one of the group, is also evident in the new program. Children are not expected to sit still for long periods, and the teacher is not always in the front of the room impressing the children with her personality. The work itself takes a larger place because it is closely related to the children's needs. Yet, whatever experience has shown to be related to children's interests and activities has a place in the modern program. The children are busy throughout the school hours. The subjects as outlined in the course of study are taught. Music, art, and games have their place. All the best of the old program is retained in the new, but the nervous haste and choppiness which characterized the older program are gone; there is time for whatever is essential, and non-essentials tend to disappear.

Some large periods for which to provide. The more im-

portant phases of work must be provided for each day, yet so general in character are these periods that no standard nomenclature has been arrived at to indicate them. The names here used tell the general character of each period.

Welcoming the children. The daily return of the children to school should be a joyous occasion in which there is opportunity for a genuine personal contact with the teacher. No sense of haste should mar it. To combine this spirit with the routine necessary in the passing of lines and the caring for wraps, calls for excellent leadership. Certain relations to the general building procedure must be accepted. Frequently the principal is willing to modify conditions for the younger children, but this may not be necessary.

Very early the children should learn to come into the room promptly, to hang up their wraps at once, and to say good-morning to the teacher. If this is a genuine greeting, there will be time for a word or two about some event of importance which the child wishes to tell his friend, the teacher. Often he will pass the bit of information on to some of his mates. There will be flowers to present, a new book to show, a toy to share — all the contributions which link the home with the school.

In many progressive schools the children put themselves to work at this time at various projects which appeal. The psychology back of this procedure is that each child enters the room in an individualistic frame of mind, and will join in socialized activities with greater zest if they are approached gradually. It throws upon the child responsibility for his own activities from the moment he enters the schoolroom. It also gives the teacher opportunity for "sizing-up the

situation," discovering leading interests, noting signs of illness, straightening out difficulties between children, and starting the day with an understanding of conditions not possible when children are rushed into their seats to sit quietly.

A socializing hour. Early in the program comes a period when the children join with the teacher in enjoyment of conversation, songs and poems, and in planning for the work of the day. Whatever has found its way into the kindergarten morning circle or the primary morning exercises may be considered here if it is not too formal. Children like a little touch of the ceremonial, and the good-morning and birthday songs, the little prayer, the salute to the flag, and the marching song may well be used. Greater variety from day to day should be possible, however, if the ceremonial is only a part of the period.

When a teacher is stressing hygienic habits and personal appearance, this is a good time for inspection. Approval of clean hands and faces, display of clean handkerchiefs, attention to a new dress or shirt, or a pair of new shoes, all will help in raising the standards set in careless homes. One teacher had a little poem about new shoes, which was always recited as the proud possessor of those articles marched before the class. A charming conversation grew out of one child's account of the purchase of the baby's first little red shoes.

The kindergarten has always made much of birthdays, and the primary grades may well follow this happy custom more generally than is now the case. The birthday child may be given certain privileges of service, as leading the line

or choosing the first game. Even so simple an expedient as drawing on the blackboard a birthday cake with its colored candles lends a festive air to the room. Perhaps the bulletin board may contain the announcement:

This is John's birthday.

He is seven years old.

Happy birthday, John!

When lunch money or pennies for savings are to be collected, this is the time for doing so, the teacher emphasizing different educative factors from day to day. At times the counting of the money lends interest, again the inspection of new coins, and at another time recording the amount. This is another activity which is in danger of becoming simple routine, but when properly used, it may yield many values.

The calendar has for many years received attention at this time, the sunshine, rain, or snow being recorded. Since care should be taken that this does not become a routine procedure, perhaps it would be better to keep the calendar only during three or four months which have marked characteristics — October, December, March, June.

A period for projects; "a free period." The most valuable work which little children do is that in which they direct their own activity, in which their purposes, as far as possible, determine the work in which they shall engage. The project is the unit of this activity. A period during which projects are the business of the whole class is decidedly necessary. Such a period may not occur every day unless the supply of materials available and the results obtained by the children indicate the wisdom of a frequent "free period." Some teachers find that the intelligence of the children is a

determining factor; that children with a high degree of intelligence think of many more projects than slow, dull children do; that the latter thrive better with a larger proportion of directed work. In some communities the home atmosphere keeps children from exercising initiative; again the home encourages it. The teacher's own attitude may deter her from undertaking too many free periods until she has had some experience in directing them. At times the tradition of the school system is so formal that the introduction of such periods has to be made with care, in order to win over the doubtful parents and administrators and prove to them that the time is not wasted, but is used to advantage.

In our more progressive schools, long periods are given daily to project work, the teacher helping and supervising this work part of the time, again giving small groups their reading lessons while the rest continue working on their projects. The old type of "seat work" is transformed in this way, although any form of such work which has proven of value may become a project for certain children.

A period for training in bodily control. Every opportunity must be given for the rapid growth of childhood to progress normally. We know that constant sitting still in immovable seats not only prevents normal growth, but actually produces injurious postures, cramps development of bones and muscles. So, too, nervous disorders are brought about in susceptible children by formal, boresome programs. Both the newer furnishings and the freer programs offer better conditions for wholesome development. But these are not sufficient. They must be supplemented by active training through joyous activities so that children may be-

come conscious of their ability to control their bodies and of the sense of well-being which comes through games, play, and rhythms. Gradually teachers will be trained also to give such corrective exercises as are needed for special cases. Time should be allowed on the program for all these activities; sufficient time, moreover, for a rich opportunity for gain in freedom, ease, and grace of bodily control, with no sense of haste.

In addition to arranging this program time, every teacher should be watchful for occasions when children need to join in a game as a relief from a protracted period of bodily inactivity, or as a means for bringing them into a group spirit after a period of individualistic work.

Where the three R's belong. The amount of time to be given to formal subjects varies with the requirements of individual schools. When a teacher understands how to relate reading and number work to the activities of the children, less time need be specified on the program for these subjects. There will always, however, be need for some specific periods devoted to them. If the teacher understands working with small groups, she may designate a fairly long period, thirty or forty minutes, for reading groups or number groups, the time given to each group varying from five to eight minutes. Writing and spelling are usually given to the class as a whole, and experience indicates that daily short periods devoted to such work make possible the progress expected. Experimental evidence may, in time, help us to know the proper amounts of time for each subject in each grade. Care should be taken not to require writing after a period of physical activity, since it is difficult to

adjust to fine movements after strenuous use of large muscles.

Program time for art and music. Much of the value of art for little children lies in the relation of it to their projects and as a language for expressing their experiences. Music comes as a socializing experience and in relation to games and rhythms. Appreciation of both art and music arises as the teacher provides for pictures and colors, and for victrola records or piano selections fitted to their moods. Formal lessons may be needed, but at present less emphasis is placed on them than formerly.

QUESTIONS AND PROBLEMS

1. Examine the programs described in the report of the National Council of Primary Education, "What Constitutes an Acceptable Day's Work in the Primary Grades?" (See References at end of next chapter.) Which programs best meet the conditions described in this chapter?
2. To what extent are project work and free periods made a part of the kindergarten and primary work of your community?
3. Observe the younger children approaching and entering a school. Do they come singly or in groups? What evidences can you observe of activities or moods which may influence their schoolroom behavior?
4. For what danger signs must the teacher be watchful as the children gather?
5. Plan socializing periods for a week, making provision for continuity of certain lines of procedure and for variety in other lines.

CHAPTER XVI

PROMOTION STANDARDS

Promotion as a school mechanism. Our general educational scheme is based on the school year as the unit, the assumption being that a pupil shall complete one grade each year of his school experience. Marked advance has been made in breaking this "lock-step" procedure, yet the common expectation is that each child shall advance at this rate. In school systems which have flexible promotions, a pupil may be advanced at any time when conditions warrant a promotion.

The problem of the repeater is a serious one since there is grave danger of his not having vital work during the year that he repeats a grade. Moreover, injustice is frequently done both teacher and pupil when a hidebound administrator issues a blanket order to promote all pupils, or condemns a teacher if more than a given percentage of her pupils fail. Sometimes a superintendent insists upon crowding pupils on in order to make room for the beginners. A child capable of doing only first-grade work obviously does not achieve second-grade ability by being placed in a second-grade room. Fortunately, the importance of these early years is more and more realized, and the machinery of promotions is being adjusted to the pupils, rather than the pupils being fitted to the machinery. Primary teachers and supervisors are being given greater leeway in planning the necessary administrative measures.

Promotion as the home sees it. Pride in the progress of their children is an outstanding characteristic of parents. They measure this progress by the school year, and confidently expect each child to advance a grade each year. Failure to "pass" is considered a serious admission of stupidity, unless there has been a cause easily apparent, such as serious illness. As soon as a pupil shows signs of difficulty with his school work, a certain type of parent will try bravely to be of help. Unfortunately, this proffered help may prove a hindrance; it may result in confusing the pupil because the parent's methods differ from the teacher's, or it may result in such an atmosphere of failure and discouragement as to hamper the teacher's efforts. A few parents, happily, have the time and the inclination to study the situation through the teacher's eyes and do constructive work under her direction. This type of coöperation is a distinct help to the pupil who has difficulty. The accelerated pupil is likewise a problem in the home, and the combined wisdom of parents and teacher is needed to provide either an enriched curriculum or a double promotion, as the child may require.

Varying rates of progress. Intelligence tests and achievement tests show at least three groups in an average kindergarten, first, or second grade: the accelerants, the normal pupils, and the slow group. In addition, many rooms contain individual cases of subnormal or handicapped children, besides the immature group and the repeaters. A further division of first-grade pupils may be made on the basis of kindergarten attendance, since a year in the kindergarten gives definite helpful training.

These children differ in rates of progress because of their

native individual differences and because of the training they have received. There is something mysterious about the sudden spurts of growth which are noted in individual cases. An immature child may suddenly awaken to an interest in reading, a shy child may be aroused to active participation in a game. Such a spurt may be a starting point for a steadier gain.

Variations in rate of progress complicate the problem of promotion for the teacher constantly. Where there are several groups within a room, adjustments must be made. Exchanges are not difficult between two first-grade or two second-grade rooms. A double promotion may occur at any time. In general, however, the close of the year or half-year is promotion time. Administrative officers, teachers, and parents should recognize that it is just as normal for a slow child to spend ten years in covering eight grades of work and for the accelerated child to cover the work in six years, as it is for the majority of children to complete the eight grades in eight years.

WHEN PROMOTION IS BEST FOR THE PUPIL

Intelligence as a factor. The most important factor in determining a pupil's promotion is his general intelligence. Is he capable of doing the work of the next year, with its greater responsibilities and more difficult problems? If grade work were rigidly standardized, and if other factors were not operative, intelligence tests would quickly determine the matter. Observations of the progress of slow groups in recent years has led to variations in grade requirements to such an extent that a group of slow first-grade

children may be promoted to the second grade and find there a program adjusted to their abilities. With the very capable children other factors require careful consideration before they are given double promotions based on intelligence alone.

Health as a factor. Nervous stability is an essential for success in school. Overstrain develops when the requirements for a child to fulfill are beyond his physical or his intellectual ability. This may happen to a child of any intelligence. The teacher should consider carefully, in relation to promotion, cases of malnutrition, tonsil and adenoid cases, children who have had severe attacks of contagious diseases, and those who show definite nervous disorders. Especially should she be watchful for symptoms of nerve strain with accelerated children under consideration for double promotion. On the whole, these children have a higher health average than normal children, but cases of the bookworm type are not uncommon. A vigorous mother often fails to recognize physical frailty in her child. Intellectual work is both natural and joyful when a person is well, but a diminished supply of blood to the brain, or a general condition of malnutrition means a lack of the energy needed for school work.

Social adjustment as a factor. Among the many recently discovered ages of children, one of the most important is the social age. Maturity is one element in its development; contact with other children is another. To promote an immature child, not yet adjusted to the wholesome social contacts of a kindergarten or early grade, to a grade where less attention is given to developing social re-

lationships may mean that the child will withdraw into himself, instead of learning to work and play with others. To retain a child who is socially mature with children who have not advanced as far in social adjustments, may mean the development of such unwholesome traits as domineering or overconfidence. Getting along happily with others is one of the most valuable lessons taught in the schools, and it cannot be taught successfully when conditions are artificial.

Progress in school subjects as a factor. The teacher's judgment as to a pupil's fitness for promotion is the main element to be considered. She has contact with him from day to day, she knows his reactions to the many conditions which confront him, and she plans her work with his individual needs in mind. The supervisor should be ready to advise concerning cases in which complications arise. When it is a question of balancing health or social adjustment against general intelligence or progress in school subjects, her judgment may be superior. Standardized tests may be used by either teacher or supervisor to gauge the progress of the class. They should be supplemented by records of informal tests, given from time to time.

Promotion from second to third grade should be based in part upon reading ability. Whether reading should be used as a criterion in promoting from first grade to second may be debatable. Undoubtedly there are socially mature children who do not make satisfactory progress in reading in the first grade. Cases are recorded in which individual children of this type have been promoted and have succeeded well in the second grade. There are other cases in which such children have been retained in the first grade and have

become strong pupils. We cannot be certain in each case as to the wisest procedure. As we gain in knowledge of scientific methods of teaching reading, the problem may become simpler.

While there is advancement in both first and second grades in use of numbers, in writing, and in spelling, there seems to be no evidence that these subjects are used as determinants with reference to promotion. They seem to be considered in a more general way in relation to the problem.

Unfortunately, promotion from the kindergarten is almost always a routine determined by the pupil's reaching a given chronological age. A better type of adjustment will undoubtedly be developed in time.

What the report card promises. Parents should be informed, from time to time, of the progress of their children. The older type of report card contained this information with regard to specific subjects of study. The newer cards contain, in addition, items as to health, social habits, the use of initiative and judgment, and the use of oral English. Space is provided for comments by parents. Explanations are printed as to the relation of the various items to the promotion of the pupil. In order to keep faith with the parent it is essential that the report card be a true statement of the teacher's judgment. Then final action will be fair to all concerned.

Final consideration of promotion. With data at hand concerning the various factors discussed above, the teacher is able to consider each child as a candidate for promotion. General intelligence, health, social adjustment, progress in school subjects, report card promises — each will have

weight in specific cases. What is best for each child must be carefully considered. Not all children will live up to the opportunities given them, and the new term will show the need for readjustments. At no time has greater thought been given to the placing of young children in the best environment for natural development.

QUESTIONS AND PROBLEMS

1. Learn which children in a given room have been accelerated, which are repeaters. Discuss with the teacher the results which she has observed. Is there a problem case concerning which she is troubled?
2. Some parents pay children for attaining high grades, or punish them for low grades. Is either of these a wise procedure? Give your reasons.
3. Give suggestions for better promotion standards from kindergarten to first grade. What are the main factors which prevent a better adjustment?
4. Collect some modern primary report cards. What influence should they have upon home conditions?

SELECTED REFERENCES FOR PART I

- Bureau of Education, *Proceedings of the National Council of Primary Education*, Bulletin 26 (1918), Bulletin 69 (1919).
- Burnham, W. H. *The Normal Mind*
- Hartman, Gertrude *The Child and His School* (1922.)
- Hill, Patty S., and others. *A Conduct Curriculum*
- Merriam, J. L. *Child Life and the Curriculum* (1920)
- Morgan, J. J. B. *The Psychology of the Unadjusted School Child*.
- National Society for the Study of Education. *The Kindergarten and its Relation to Elementary Education; Sixth Yearbook*, part II. *The Coordination of the Kindergarten and the Elementary School; Seventh Yearbook*, part II.
- O'Shea, M. V. and others. *The Child. His Nature and His Needs*.
- Parkhurst, Helen. *Education on the Dalton Plan*
- Farker, S. C., and Temple, Alice. *Unified Kindergarten and First Grade Teaching*.
- Remer, Laura. "A Comparative Study of a Border-Line Defective and a Normal Child of the Same Mental Age"; in *Journal of Educational Psychology*, March, 1922
- Woolley, Helen T., and Ferris, Elizabeth. *Diagnosis of Young School Failures*, Bureau of Education, Bulletin No. 1, 1923.

PART II

CHILDREN'S EXPERIENCES AS A BASIS FOR ENRICHED LIVING

CHAPTER XVII

SOCIALIZING THE CLASS

The double relationship — individual and social. Throughout life each of us is conscious of two relationships — that to one's self as an individual, and that to those with whom one has social contacts. Many of our most serious problems arise from difficulty in determining which relationship should be stressed at a particular time.

To watch the development of children with reference to both relationships and to plan conditions so that this development will be of the best requires careful study.

The development of individuality. As soon as the baby begins to discover himself to be a cause, to integrate his various experiences as belonging to him, we may say that his individuality has begun to develop. There is prose as well as poetry in our speaking of a baby's kingdom, for to him his entire world relates only to his needs, his comfort, his happiness. The slightly older child — the "toddler," "run-about child," or "pre-school child" — carries on this attitude, and having his own way seems essential to his happiness. At this point all who influence him should arrange his environment so that his way is the one which is best for him.

The sense of selfhood, of individual worth, of personality,

remains one of our most precious possessions throughout life. The best education enriches the personality; the best discipline integrates it; religious training consecrates it.

The beginnings of socialization. The educator has assumed that before entering school the child is a pronounced individualist, and that his social training begins then. Careful study, however, indicates that the beginning is much earlier. A young baby likes to be with people. Their movements and conversation make some appeal to him. The toddler seeks companionship as he enlarges his experiences. Careful studies of young children made in the nursery schools seem to indicate that lack of opportunity rather than lack of desire has prevented a more complete socialization of the younger child. We shall find individual differences as to social control among the children entering our kindergartens and first grades, largely because of family and neighborhood influences. The school, however, assures constant social training for all who attend.

Elements of social training. Contact with others is the beginning of socialization. Even the slight contacts made on the street, in shops, and in street cars supplement the common contacts of home and neighborhood, but when daily attendance at school begins the young child has his first steady contacts with a large group of his peers. The joy of companionship becomes strong, discovery of interesting abilities in others stirs him to new accomplishments, and the force of public opinion begins to exert an influence. This is the answer to the mother who thinks she can educate her child at home. Individual instruction she may give him, but he suffers from lack of contact with other children.

In the daily program of the school, two types of grouping are possible: frequent small informal groups made by the children themselves, and larger groups brought together by the teacher. Through watching the informal groups marked characteristics of certain pupils may be discovered. This is the teacher's opportunity for observation. Leadership, initiative, and sociability appear on the one hand, and shyness, self-sufficiency, and lack of confidence on the other. The ability to arouse the enthusiastic coöperation of others is worth cultivating. So is the ability to subordinate one's self for the sake of the work the group is doing. There is less strain upon a child when he is working with a small, homogeneous group than when he is one of a large group.

When all the children are interested in the same activity, the teacher has them well under her direction. Conversation periods about a common experience, story telling, songs, and games are valuable in this connection. Care should be exercised that participation by the children is a large part of such periods, that the teacher does not let her personality obtrude itself too much. The democratic training involved in taking one's turn, the sense of audience as one does something which interests others, learning to listen and to watch others appreciatively, are all elements in this development of the larger group relationships.

In our complex, modern schools, the young child comes into occasional contact with many other adults whose relationship is evident for brief periods only — the principal, the supervisor, the special teachers, the nurse, the psychological examiner, the doctor, and the janitor. Every effort should be made that in these associations the child's sense of

need, and she must observe the development in social control manifested by each individual as a result of his participation in games.

Social development through the circle. The modern kindergarten or primary school seems more like a busy workshop than like the formal schoolroom of tradition, yet there are times when busy youngsters should be brought to enjoy some common experience. As was stated earlier, the circle formation gives each the best opportunity to see and to be seen. A degree of quiet both as to posture and speech is necessary here, if all are to participate helpfully in the circle activities. An easy, comfortable posture is best; there should be no strain as in the conventional "sitting in position." Wholesome quiet does not mean the old "pin-drop" quiet. Gradually the children learn to restrain much of their chatter as the circle activities arouse expectation. To speak so that others may hear, to listen to what others are saying, to join with others in song or finger play, come to be relatively easy matters in time.

The auditorium experience is but an extension of circle activities, if it is really adapted to the little children. To take part with other classes, perhaps with the whole school, gives a larger point of view and increases the sense of belonging.

QUESTIONS AND PROBLEMS

1. Give illustrations of a very young child asserting his sense of individuality. How did the parents and playmates react to these assertions?
2. Observe little children at recess or playing out of doors at home. What evidences appear of social or non-social behavior?
3. Some children attain leadership by bossing and assertion of physical strength, some by strength of character and originality in planning. Find and describe instances of each type.
4. Collect cartoons dealing with young children. Judge them in the light of this chapter.

CHAPTER XVIII

COMMUNITY INTERPRETATION THROUGH THE PROJECT

The expanding world of the young child. A number of forces are at work expanding the world which the young child knows. The intimate family life of his babyhood presents a tremendous learning situation during the first year, but as walking becomes an established mode of locomotion, as waking hours are longer and meal times less frequent, he extends the boundaries in which his activities take place. Sense impressions received in the home help him to unravel some of the myriad new sense impressions which come flooding in to him. Social contacts of the home give him an interest in the people he meets. Wherever he turns some new situation is presented.

Parents and teachers should realize the educative opportunities in these new situations. The quiet suburban neighborhood gives experiences with grassy lawns, blossoming flowers, beautiful trees, kindly people. A visit to grocery or drug store shows the child large quantities of the types of things which he sees in his home or of strange things in boxes and bottles. The orderly arrangement differs from the order in his home since there is greater quantity of similar containers. The people here differ from those in the home neighborhood; they are more impersonal, there is a hum of industry, with constant comings and goings. A busy street brings still other experiences — the hurrying crowd, auto-

mobiles flying by, street cars clanging, the helpful traffic officer, and strange types of people.

Every teacher should analyze the experiences which her pupils are having in order to realize the educational possibilities with which she is dealing. Many of our newer courses of study are built upon this basis. Besides making the most of these natural experiences, the teacher is able, through careful planning, to give her pupils additional experiences which would not come without her help. A visit to a toy store, a walk through an outdoor market, an excursion to a farm, or a picnic in a park might not be provided for them in any other way.

His energy and purposes meeting this challenge. The healthy child is full of physical energy seeking an outlet. Many of the difficulties in home and school arise from a failure to provide sufficient outlets for this remarkable energy. Mental energy is just as natural and seeks its own outlets. The tendency of the child to "get into things," to handle whatever he sees, is due to his mental energy, his need to explore and understand the world about him. Children's questions indicate this hunger for knowledge. Observation of one child showed over three hundred sensible questions asked in one day. In the same way children begin early to have purposes of their own. Educators are only beginning to realize the value of these purposes, to see in them an unusual force needing encouragement and direction.

The project starts with the purpose of the child, his feeling of need directed toward an end. The experiences which come to him as his world enlarges arouse these purposes and challenge him to imitate, to participate, and to share. This

ability to see problems and to direct one's energy toward solving them is highly valuable. Possibly no contribution of recent years in the educational world is equal to the recognition of this fact.

Projects involving dramatization. Any situation in which the people he sees are doing interesting things suggests to the child that he and his group play at the same things. As a result the children play house, they play store, or they play street car. A bit of spontaneous play lasting but a few moments may satisfy them at times, but as they gain control over objects and materials, as they learn to hold in mind longer sequences of ideas, a more elaborate project is evolved. A house or store or street car must be built, characters must be discussed, appropriate language for the needed situations must be approved, and possibly an audience secured.

The teacher should supervise this planning and execution to make certain that the children's observations have been clear, that their inferences have been correctly drawn, and that their portrayal is sincere and adequate in the light of their experience. Nothing is easier than for her to tell them what to do and why; yet in so doing she robs them of valuable training in planning and executing. The child's own interpretation of his experience helps him in further interpretation; the teacher rightly belongs in the background.

An interesting comparison may be made between the way children play school and the way they play store. A traditional way of playing school has been handed down from generation to generation. There is no interpretation of environment involved; perhaps it illustrates their love of

caricature. From decade to decade in village schoolyard and city schoolroom the procedure is the same: one child armed with a stick scolds and bosses a lively group who persistently refuse to obey. There is a startling contrast with the schoolroom the children know. Playing store brings an entirely different series of activities. Shall they play grocery store or meat market? What shall be the counter? How may the goods be secured? What shall be the prices? Who will be a good clerk? Is money needed? In what shall it be carried? Many more problems need to be solved. These are worked out in keeping with the stores which the children know, and further observation or inquiry is often resorted to in order to clear up a difference of opinion. As a result no two groups of children play store in exactly the same way. From year to year in the same schoolroom great variety may appear. Whether playing the caricatured school is a worthy project may well be asked. No one doubts the worthiness of playing store.

To the extent that children accept the reality of the characters in a story and interpret their actions, there is the possibility of their dramatizing stories. Here again the teacher should make sure of their interpretation, should accept sincere and childlike efforts even if they are crude, and plan for many children to have opportunity for participation.

Projects involving construction. A close relationship exists between children's play and dramatic activities, and the projects which they undertake involving construction. A toy animal is cut out of wood by means of the coping saw. It is fastened to a board and four small wheels adjusted. A

coat of paint is added. Why? So that the toy may become a plaything used in many circumstances. The schoolroom screen finds service as the protecting walls of a house, a tiny table and chairs being laboriously constructed and installed. A tablecloth and small dishes appear. Why? So that numerous tea parties may be enjoyed. A moving-picture is to be given or a puppet show promises fun. Construction is necessary to prepare the stage, the curtains, the movie film, and the puppets themselves.

Many large complex projects involve the use of a large part of the floor for a comparatively long period, large blocks making walls, a ship, or some other basic unit of construction. One of the valuable projects which we have seen was a city street, set upon the floor, the double row of houses and stores constructed of boxes. Sand table projects, too, are frequently complex. The work begins with certain details in the minds of the children, and as these take form other details suggest themselves. Care should be used that these projects shall not be dragged along until they have outlived their relation to the children's need. One test of a true project is its unity, the fact that the end is so closely related to the beginning that the children themselves know when they have finished.

Strangely enough one of the most valuable projects, the making and furnishing of a doll-house, is often carried out without regard to that common delight of childhood, "playing house." We have visited a first grade in which a beautifully furnished doll-house occupied a place of honor. A child has been sent to display its treasures. "What do you do with it now that it is furnished?" "Oh, some one dusts

it," has been the answer. What a pity! To make a doll-house just to dust! Can this rightly be called a project?

While an idea to be expressed is frequently the starting point for a project, materials or tools may suggest possibilities. "How can I make this?" or, "I'll make myself one," is the attitude which the idea starts. "What can I make with this?" is suggested by an attractive material. "What can I make using this?" is the question aroused by an ingenious tool.

Excursions as projects. Casual observations by many children or more unified experiences of individual pupils may be valuable in contributing to morning talks. Directed observation of pictures, plants, animals, or interesting products form an important part of the school program. But these are not enough. Every class needs the stimulus of excursions to investigate situations full of new conditions. An excursion yields the most educative factors when it is carried through as a project, the children assuming as much responsibility as they are capable of carrying.

When a school has been unaccustomed to excursions as a legitimate feature of its school life, the teacher will have to make the initial plans for the first few times, but when excursions are traditional in a school, the children are very likely to think of some which are worth while. In some experimental schools excursions form a regular part of the program. The teacher must be sure, however, that she has the coöperation of her principal before entering into even a preliminary discussion with the children.

The amount of planning which the children can do will vary with the nature of the excursion. The teacher's own

plans must be very carefully formulated, and they should definitely include plans for details which may be worked out by the children. Some of these are: getting permission, arranging for transportation, calculating carfare and lunch-money, deciding as to appropriate clothing, as well as a discussion of special behavior as to safety and courtesy. Very definite problems to be answered by the excursion should be presented before the day of the excursion. These problems should be recalled at the most propitious times during the excursion. Children should feel responsible for reporting upon them at school in the days immediately following. A dramatization or construction project, a series of reading lessons, or individual or class booklets should properly grow out of an excursion project. Recall of essential facts and of joyful activities will thus be provided in valuable ways.

Raising plants and caring for animals. The most vital relation which children sustain toward plants and animals is that of contributing by their care to the growth of these living things. The changes which take place from day to day as the seeds germinate, as the chicken's eggs hatch, as the rabbit's fur thickens, are dramatic in their intensity. Forces are at work here which appeal to the sense of mystery and awe, time becomes a measure of real value, and relationships are involved which must be reckoned with.

In any schoolroom bulbs and seeds will develop into flowers, and some animal pet may make a short visit. In more favored schools, school gardens are possible, and space is found for animal families. The raising of chickens has become a traditional project for the second grade in the Francis W. Parker School. "I wish your visit had been

to-morrow. Then you could have seen our cow visitor," was the greeting extended at the Curriculum School in Denver, where the cow, the sheep, and the pig in turn are sheltered in a corner of the school yard and cared for by children and teachers.

Festivals as projects. Much of the joy of the school year centers about the recurring holidays and festival seasons the celebration of which has become traditional. Teachers and parents enjoy these occasions, too, and they serve as an excellent means for bringing home and school together. To provide types of celebrations which will provide wholesome growth is essential if the time spent upon them is to be well spent. The ready-made program published in a cheap journal is seldom, if ever, justifiable. The characteristics of the individual schoolroom should play a part in the celebration, and as far as possible the program should be an out-growth of the regular work. Genuineness thus takes the place of artificiality, and the pupils enter into the plans with an alertness and an intelligence impossible in the imposed program.

The test of the value of the festival thus becomes the measure in which the children themselves plan and suggest, develop the program, invent any needed setting, make the costumes, compose the songs and dramatizations, and feel the responsibility from first to last. To the inexperienced teacher the ready-made program appeals as far easier to carry through, and it may give a superficial brilliance and glitter which mislead the parents. Experience in developing simple celebrations related to the regular work, however, will soon demonstrate the greater values of this type of procedure.

Some results of the use of projects. Initiative, resourcefulness, and dependability are desirable qualities for children to possess. Self-reliance, originality, "stick-to-it-iveness," and coöperation are also important. Continued use of projects tends to develop them all. Training in seeing problems brings ability to see more problems. Seeing a problem challenges the individual to attack it and work out its solution, while energy expended in working out problems leads to self-control and self-direction. Selection of others to help evolve and carry out a plan leads to cooperation, and leadership is thereby developed. Carrying the project through to a conclusion makes possible the judging of results in the light of the beginning problem; a sense of worthy accomplishment becomes a reality. Gradually some consciousness comes of the interplay of forces, the orderliness of the world. The child is better fitted to live in a complex world when he can analyze its complexities into problems the solution of which gives understanding. A degree of nervous stability is attained which is impossible when one's world is confused and unrelated. The child helps to create his own orderly world. As his community expands, his ability to interpret expands likewise.

QUESTIONS AND PROBLEMS

1. Observe, for ten or fifteen minutes, a young child playing freely out of doors. Note the sense impressions which may be influencing him during that time, and classify them as strong, moderate, or weak.
2. Analyze the educative opportunities in a six-year-old's shopping trip with his mother to buy a new pair of shoes or a new hat.
3. Describe a project which you carried on as a child, and tell the values you think you received from it.
4. Begin a card catalog of projects adapted to little children.
5. List the profitable excursions within easy walking distance of a school in your neighborhood.

CHAPTER XIX

HOW THE STORY EXTENDS EXPERIENCE

Choice of stories determined by children's needs. Very early the young child begins to display an interest in nursery rhymes and jingles and in certain types of stories. Just what elements are the basis for this interest we do not know, but "Tell me a story, please," and "Tell it again" have been common demands for many years. The joy of companionship and the music of speech are strong appeals; there may be others. Recent experimentation shows that the very little child likes much simpler stories, nearer to his own experiences, than we have realized. A new field for writers of children's stories lies here. The "Here and Now" type may also need extension into the primary grades.

Hundreds of folk tales and fairy stories, and poems and seasonal stories are in use in our schools to-day. Two movements are in progress regarding these: one of selection, to make certain that the best are used and that each story is placed in the most appropriate grade; the second, a recasting into literary form when acceptable versions are not available. Excellent lists may be obtained which show the best of present practice, but there is a continuous working over of the materials so that they may better fit the needs of the children.

A story should deal with people whose experiences children can interpret, with settings which they can picture, with events which they can follow, with purposes which they can

understand. The nonsensical and grotesque have a place with children, but unless the children understand the actual situations of which these are variants, the humor does not appeal.

Learning to think of people. To meet people in actual life is one type of experience, to meet them through the medium of the story is another type. First of all the story-teller has to make her audience see the people whom she portrays. Careful selection of their most marked characteristics and the adaptation of words to bring out these characteristics is essential. The appearance or nature of the individual may be brought out by only a word or two, such as "a teeny-tiny woman," "a kind gentleman," "an ill-natured cook." Unless "teeny-tiny" and "ill-natured" convey meaning to the children, however, they are not suitable words to use without explanation. Longer descriptions may be used with older children, but brevity and pithiness are always desirable qualities with younger ones.

The fairy, the elf, the dwarf, and the giant are characters differing in many ways from the people whom the children meet in actual life, but their unusual qualities are of degree, not of kind. The fairy is more beautiful than any one the children have seen, but they have seen people they consider beautiful. The elf differs mainly in size, the dwarf and giant combine ugliness with the variation in size, but children have seen people of different sizes as well as ugly looking people; so they are ready to follow the descriptive words intelligently.

What the characters in the story do and what they say is even more important than how they look. Their actions

must stand out vividly, their conversation must be crisp and effective. Both actions and language, however, must deal with conditions which children understand. When a new idea is presented, care should be taken that both the idea and the word describing it are made clear.

The characters whom the children meet in the story, it will be seen, are people like those they know in real life. Mental ability of a high order, though, is required to visualize definite characteristics and qualities, to combine these into wholes which seem like people, and to follow these imaginary beings into changing situations.

Learning to visualize conditions. The setting of a story is important as a background for the life of the story people, and as conditioning many of their activities. Little Red Riding Hood could not have met the wolf unless her path had lain through the forest, nor could the woodcutters have come to her rescue unless their task had been a common forest occupation. Cinderella's very name depended upon the wide hearths with their great fires in common use for many hundred years.

Children who know a park or a wood may be helped to understand a forest setting. But there are children who do not have this background. One group of city children, taken for a woodland picnic, were astonished to find no concrete between the trees. Their teacher had prepared them for the number of trees they were to see, but she had not realized that their only experience with them was of the downtown trees whose roots were given little room in the concrete pavements.

Whatever the main setting of the story may be, the

teacher should carefully select for the children those ideas growing out of their experience which will help them to picture the large backgrounds in which the story is laid. This is one place in which the "movie" has made a real contribution. Many of the children will have seen high mountains, noble castles, rushing rivers, and broad expanse of lake and ocean at the "movie," and all of these may be used in the interpretation of the story told by the teacher.

The details of living conditions in the story will vary from those which make up the children's own lives. Though food and clothing and shelter may differ, they will still be food and clothing and shelter, to be compared with one's own home surroundings. Those details which attract children in their own everyday life are the ones to bring out in storytelling. Recall of sense impression gives a touch of reality in the red cape and hood, the nice brown pancake, the music of the bird's song. These details arouse sensations which have given pleasure. They give color and richness to the story.

Here, again, the teacher must be on the alert. Her own experiences as a child may have been far removed from those of the children she is teaching, and what may seem common enough to her may be unknown ground to them. In furnishing doll houses teachers have found whole classes of little children who have never seen a desk, a bookcase, or a kitchen cabinet in a home. The bears' porridge is better known when compared with our breakfast cereal. Unless details are understood, the child's flow of ideas is interrupted, the unity of the story may be lost, and vagueness takes the place of clarity. How much richer is the life of the little

child when he learns to picture many situations in which all sorts of interesting things may occur!

Learning to follow a sequence of events. Activity of some kind is essential for little children. Gradually mental activity assumes a larger rôle in a child's life; teachers should realize the place of the story in providing this activity. Many things happen, many changes occur, as the story progresses. In the simplest stories there is a time sequence with very little plot. In the cumulative tale a simple finale at the end releases the chain, as in the story of "The Old Woman and her Pig," or gives a striking climax as when the fox eats the gingerbread boy.

In more elaborate stories a place sequence combines with the time sequence. Hansel and Gretel are seen first in their own home, later in the forest, again at the witch's cabin, and finally restored to their own home. A much more complex plot is built up when both time and place change. Cause and effect relations enrich the more elaborate plots. People are seen as causes; their characteristics determine the action of the story; conversation is more than casual comment, and must be reckoned with. Emotion colors the whole. Only an active mind can follow these various sequences, can appreciate the clues leading to the climax, can keep the various steps in mind until the climax unravels the plot. Ability to concentrate develops as the children listen to many stories, and they learn to hold in mind longer and longer sequences of thought, and richer and more complex plots.

Learning to question events and purposes. Just as children question the behavior of their mates and of the grown-ups around them, so they question also the conditions

portrayed in the story. "Why didn't the gingerbread boy know the fox was cruel?" complacently remarks one wise youngster. "That's a good job done!" says a small boy as the mother goat sews the stones into the wolf's stomach and he falls into the well. "But there couldn't be a bad woman!" says a little second-grade girl as she listens intently.

One of the charms of the good story-teller is her tact in leading children to foresee what will happen next. This situation frequently gives rise to several suggestions, based upon their comprehension of the events and purposes already apparent in the story.

Since wider acquaintance with human nature is one of the chief objectives of story-telling, comparing the characteristics and judging the behavior of characters are most natural responses. The little child does not passively accept a new acquaintance in real life. Safe in the protection of his mother he eyes the newcomer cautiously, gradually accepts advances, and finally shows that he has discovered the real friendliness offered. So in the story world the new character presents a challenge, and the teacher must help him to become well enough known so that the child may place him in the charmed circle of his friends, or shut him out with those strange and unknown people whom he has not yet accepted.

The place and character of illustrations. Illustrations have a large place in children's books, and there is no question that they attract both children and grown-ups. Their influence upon the child's thinking may be examined with profit. To the extent that the illustration utilizes the ideas that the child himself has in mind during the progress of the

story, it reënforces his thinking and gives pleasure. To the extent that it supplements his ideas in a way which he understands or clears up a vague situation, it is of value educationally. If, however, it takes the place of his own thinking, giving him a ready-made interpretation of the story, it may be a detriment. Kerfoot says:¹ "From the beginning of time, right down until about ten years ago, no man ever lived who could tell another man a story. . . . The best that the very best of them ever succeeded in doing was to trick, or to coax, or to compel their readers or their hearers into *telling stories to themselves.*"

The movies have served to crystallize the story as it is told, and to limit it by the illustrations presented. This crystallization is what we wish to avoid in the story told to the children; we wish them to tell the stories to themselves imaginatively. The choice of illustrations and the use to which they may be put, becomes, therefore, a problem for the teacher. The following statement as to criteria may be helpful:

Criteria for judging the illustrations in children's books have never been definitely established but it seems helpful to ask the following questions:

- a. Do the illustrations have real art quality?
- b. Do the illustrations appropriately convey the thought expressed in the text?
- c. Are the illustrations of the type which children understand and appreciate?

The first question should call attention to such matters as arrangement on the page, good drawing, and harmony of line and color. In some books for young children the illustrations are too elaborate and are sprawled over the pages in a most disorderly

¹ Kerfoot, J. B.: *Learning to Read.* P. 6. (Houghton Mifflin Company.)

fashion. Many of the illustrations show inferior drawing. Good line, good drawing, good color and composition as elements in illustrations undoubtedly contribute to setting up standards of good taste.

The second question is important in all book illustration. Children are particularly disappointed when the pictures do not tell the story properly.

The third question cannot be definitely answered until there has been more investigation. It has been fairly well established that little children do not care for pictures with complicated line and color. They prefer a flat pattern-like treatment. The child's taste is apparently different in this respect from that of the adult. The illustrations in many recent children's books have a greater appeal for adults than for children.¹

Learning to interest an audience. Children may express the story by dramatization, by illustration, and by retelling. The first is discussed in the preceding, and the second in the following chapters. We shall here discuss the retelling of the story.

For many years the attention of teachers centered upon the ability of the pupils to remember a story well enough to reproduce it, with the emphasis laid upon their growth in language power and in ability to remember the story sequence. This led to the common practice of the teacher's telling a story and the children's immediately reproducing it. Indeed, the motive for listening as set up was likely to be, "Now listen carefully to this story, for I am going to ask you to tell it again when I am through."

More careful consideration of the story as an art product exposed the artificiality of such an attack; more sympathetic interpretation of children's interests led to a realization of its

¹ National Society for the Study of Education, *Twenty-Fourth Yearbook*, part I, p. 165. *Report of the National Committee on Reading.*

formality. The best practice of the present day is for the teacher to tell the story while the children listen just for joy. Perhaps she tells it again at another time, and if their enjoyment warrants it she may tell it still a third or a fourth time. The time comes when the children themselves wish to tell stories. Naturally they select those with which they are most familiar, generally those which the teacher has told and retold.

Admirable work in group-story telling has been done in Miss Anna Ranson's first-grade room, Fairview School, Cincinnati, Ohio. This work was started upon the initiative of a student teacher, Miss Wilma Pressler. The children are asked if they would like to have a story-telling party. A list of stories is already written on the blackboard and each of the children is asked to select a story he would like to tell. The first six or eight volunteering are assigned places in different parts of the room. The remaining children select the story-tellers they wish to hear and group themselves accordingly, the teacher taking care that a fairly even grouping results, from four to seven in each group proving a workable arrangement. When all are ready, the story-tellers are told to tell their stories.

The one story will not keep a group occupied very long. However, another group member is very likely to think of a story he wishes to tell, and so contagious is the example that frequently every child in the group volunteers. Meantime the teacher moves about the room, helping where needed, ready to answer questions, arousing a slow group by suggesting stories they know, or listening quietly when things are going well.

This plan has the advantage that many more children tell stories than under the old régime. More natural usage of the voice results since the voice does not have to carry far. Furthermore, better audience relation results. A young child may feel his responsibility for interesting a small group while only the exceptional child can hold an entire room as audience without the help of the teacher.

The widening experience. We see, therefore, that the child who is acquainted with stories is no longer bound by home and neighborhood experiences. Whatever art has portrayed in story or poem which his own life has given him the background to comprehend, may give him pleasure. New scenes, new characters, new happenings delight him, and the art of telling these stories, as well as the art of listening, are also new experiences which will make him a more valuable group member, and make possible a type of contact which "enriches him who gives and him who takes."

QUESTIONS AND PROBLEMS

1. Make a list of twenty available stories which are suited to young children. Arrange them according to fitness for kindergarten, first, second, or third grades, giving the characteristics upon which you base your choice.
2. Find the same fairy story in two or three primary readers and in a collection of stories. Analyze the versions as to definiteness of plot, arousing of suspense, character portrayal, choice of English. Arrange them in order of merit.
3. Gather pictures drawn by children to illustrate stories which they have heard. What elements of these stories have made strong appeals?
4. Visit a moving picture of a story suited to little children. What large backgrounds are portrayed which children could hardly get from oral language?
5. Tell a story to a group of children. What evidences do they give of their interest? What specific points in the story appeal to them most strongly?

CHAPTER XX

CONTRIBUTION OF THE FINE ARTS TO CHILD LIFE

Art in the surroundings of the child. Art has developed to such an extent, in relation to modern life, that it seems safe to say that in no age have children had as frequent and persistent contacts with art in its many phases as at present. The architect who once built palaces, now plans railroad stations, public buildings, and attractive bungalows. Quantity production fills our homes with articles in which form, color, and design represent the work of carefully trained artists. Duplicating processes put into humble homes copies of world-famous paintings. The player piano, victrola, and radio supply the finest of music. These may all be crude art in comparison with those masterpieces which represent the highest creative genius, but they greatly enrich the life of the average child.

Art galleries and art leagues are steadily increasing in number. These give children contact with the original work of artists, and especially with those modern artists who are interpreting the life about us. Symphony orchestras are also increasing in number and influence, and appropriate programs are planned for children's symphonies, with a sympathetic interpreter to teach the children to listen creatively. The interpretative dance has attained an important place in festivals and pageants, emphasizing bodily rhythm as a real expression of mood. The school more often than the home introduces children to these higher forms of art.

Early responses to color and music. Very early the baby responds to color and to music. In both the home and the nursery school the child may be given many opportunities for development through the use of color and of sound. The red wheels of the kiddy-car and the blue dress of the doll provide enjoyment of color, and may be used to add color words to the vocabulary. One little two-year-old dances very daintily to the records which she herself puts on the victrola. "Let the bells ring! Let the bells ring!" cries another, fearing an older child will stop the machine before the charming climax of the music. Mothers, too, still find occasions to sing lullabies, even though the baby now is put to sleep scientifically.

The kindergarten has always made much of color, music, and rhythm. The six soft balls of the six primary colors, comprising the first gift, lend themselves to attractive play, stimulating those children whose sense of color has not been trained, and furnishing delight for all. Among the Montessori materials are the dainty silk flosses of graduated tints and shades, offering lovely color appeals while they test the sensitiveness of the color sense.

Art in relation to children's projects. Fitness to purpose is one great test of artistic worth, as it is of the value of the project. Color, proportion, and decoration are of use again and again as children evolve their projects. Every article of furniture for the doll house must be planned with a sense of proportion. The child whose chair fails to fit his table finds himself in a quandary. When the doll's bed is too short, trouble ensues.

When crayons and paint are available, children turn

readily to them for the touch of beauty which they add. Toy animals must have appropriate coats, and wall paper and linoleum call not only for color, but also for design. It is astonishing what ideas children are ready to contribute along these lines if the atmosphere of the room is helpful and suggestive.

Teachers are sometimes distressed at the crude coloring which pleases little children, but as starting-points for development we may safely cultivate a wholesome acceptance of their crude tastes. Guidance may come through limiting their range of choice by providing only acceptable colors, or by helping them to select the color most like the actual thing which they are imitating. To stifle freedom by imposing adult standards is certainly unwise.

Spontaneous song and rhythm occur less frequently in the usual group, but the fact that they do appear at times furnishes food for thought. What can we do in our teaching to arouse children's sense of power in these lines? Is it a question of room atmosphere? Do the teacher's own inhibitions influence the children? Are furtive attempts ignored? Children's moods are both aroused and developed by the wise use of piano and victrola. The class which is resting after strenuous exercise will relax more readily while listening to soft music. A gloomy day will lose its somberness under the gay strains of march or dance. In our zeal to make the most of this influence, there is danger of an attempt to intellectualize the process. One listens, then becomes quiet under the elusive message of the music; one does not consciously listen so that the music may make him feel like being quiet.

The problem of technique. The teaching of art and music in the public schools began long before the child study movement. As a result, this teaching which has developed in large measure from the subject-matter standpoint, rather than from the point of view of children's needs and abilities, has brought about an emphasis on technique before the children are ready for it, and an imposition of standards which are too difficult of attainment. Fortunately, as this field is being studied from the more modern angle, improvement is appearing in progressive schools. In a recent art exhibit the work from the primary schools of three cities showed the genuineness and crudity which are truly child-like.

No one questions the necessity for teaching technique; the question is rather one of emphasis. Shall little children be so carefully watched in their use of crayons and pencils that spontaneity disappears? Shall a valuable project in which color and design are needed be pushed aside for a drawing lesson unrelated to any special interest? Should the reading of music come at a time when there is a struggle in progress with first-grade reading? Obviously, when lack of technique hampers the child in his expression, and when failure to give proper training leads to the forming of undesirable habits, instruction should be given. Eventually we shall find that differences of opinion will disappear in the light of further understanding.

Provision for individual differences. Opportunity for training along artistic lines is accepted to-day as the right of every child, because of the instinctive urge in that direction and the rich experiences which such training brings. But

here, as elsewhere, the curve of distribution operates and we find gifted, mediocre, and backward groups. Mrs. Hollingworth¹ writes: "It is probably no exaggeration to say that, in an ordinary class in the elementary school, children are being taught together, some of whom are at least a hundred times as musical as others. . . . The eye cannot see the waste of time, effort, and joy which follows from the attempt to train, equally and together, children of such widely different capacities for learning."

Such tests as have been formulated in these fields are not suitable for use with little children. Eventually adequate tests may be developed. Recognition of the gifted and of the backward children in each subject is possible, however, and some adjustment of work may be planned to meet the varied capacities.

Present-day work with monotones illustrates these possibilities. Very early the monotone is discovered; indeed he almost forces himself upon the teacher's attention. To begin at once to give him special training will save him from confusion later on. Such training consists largely in having him sing highly contrasted tones in the form of little plays. The teacher calls him:



And he answers:



John -nie

I'm here

Many street cries lend themselves to this type of treatment, and such training does undeniably produce results. Where

¹ From Hollingworth, Leta S.: *Special Talents and Defects*, p. 173. Reprinted by permission of The Macmillan Company, publishers.

the defect is one of inheritance, however, it cannot be overcome. To the extent that it is lack of training, the earlier training can be started the better.

Creative work is possible for the gifted child, and better provision should be made for its exercise. Fortunately, musicians and artists are awakening to the opportunity which lies here, and are ready to help the educator in devising ways and means for the training of this group of children.

•

QUESTIONS AND PROBLEMS

1. Collect advertisements of common household articles in which form, color, and design conform to high standards.
2. Visit an art gallery and select those pictures which would appeal to young children.
3. Test several little children as to their recognition of color and knowledge of color names.
4. Describe the opportunities for art work in a project upon which you have observed children at work. What advantage did the teacher take of these opportunities?

SELECTED REFERENCES FOR PART II

- Calmerton, Gail. *Practical Projects, Plays and Games*.
- Coe, George A. *Law and Freedom in the School*.
- Colling, Ellsworth. *An Experiment with a Project Curriculum*.
- Curtis, Elnora W. *The Dramatic Instinct in Education*. (1914).
- Dobbs, Ella V. *Primary Handwork*. (1915.)
- Hall, Viola. "A First-Grade Experiment"; in *Elementary School Journal*, November, 1919.
- International Kindergarten Union. *Selected List of Poetry and Stories for Children in Kindergarten, First, and Second Grades*.
- Krackowizer, A. M. *Projects for Primary Grades*.
- McMurry, F. M., and others. *A School in Action*.
- Mathias, Margaret E. *Beginnings of Art in the Public Schools*.
- Mitchell, Lucy S. *The Here and Now Story Book*.
- Moore, Annie E. *The Primary School*.
- Pickett, L. H., and Boren, D. *Early Childhood Education*. (1923).

- Progressive Education Association. *Progressive Education Quarterly*.
Shedlock, M. *The Art of the Story Teller*.
Sies, A. C. *Spontaneous and Supervised Play in Childhood*.
Welling, J. B., and Calkins, C. W. *Social and Industrial Studies for Elementary Grades*.
Wells, Margaret E. *A Project Curriculum*. (1921).

PART III

CHILDREN'S EXPERIENCES AROUSING NEED FOR RACIAL TOOLS

CHAPTER XXI

EARLY USE OF LANGUAGE

Symbols and their value. Civilization has advanced largely because mankind has been able to invent signs or symbols to represent ideas. Kipling's fanciful account in *How the Alphabet Was Made* is true in its implications; two or more persons must have an idea and must agree as to the sign which shall represent it. Many of the difficulties in education arise because of failure to work in harmony with these facts. Either the pupil fails to have the idea or he fails to agree with the teacher as to the symbol which is to represent it. Where he lacks the necessary ideas, his language or reading or arithmetic may become parrot-like repetitions, mere nonsense syllables. When he does not acquire control over the symbols — words, sentences, number combinations, and processes — he cannot make progress. Difficulty often arises because he does not know "what it is all about."

The lack of any organic connection with what the child has already seen and felt and loved makes the material purely formal and symbolic. There is a sense in which it is impossible to value too highly the formal and the symbolic. The genuine form, the real symbol, serve as methods in the holding and discovery of truth. They are tools by which the individual pushes out most surely and widely into unexplored areas. They are means by which he brings to bear whatever of reality he has succeeded in gaining in past

searchings. But this happens only when the symbol really symbolizes — when it stands for and sums up in short-hand actual experiences which the individual has already gone through. A symbol which is induced from without, which has not been led up to in preliminary activities, is, as we say, a bare or mere symbol; it is dead and barren. Now, any fact, whether of arithmetic, or geography, or grammar, which is not led up to and into out of something which has previously occupied a significant position in the child's life for its own sake, is forced into this position. It is not a reality, but just the sign of a reality which might be experienced if certain conditions were fulfilled. But the abrupt presentation of the fact as something known by others, and requiring only to be studied and learned by the child, rules out such conditions of fulfilment. It condemns the fact to be a hieroglyph: it would mean something if one only had the key. The clue being lacking, it remains an idle curiosity, to fret and obstruct the mind, a dead weight to burden it.¹

How a word gets meaning. Through his various cries the baby makes his needs known, but this use of the voice is reflex, not conscious. He shows very early an interest in the sounds made by others; later he finds that he can make sounds at will, and the babbling stage ensues, in which the baby plays with his voice as he earlier played with his fingers and toes. So there develops a phase of companionship based on the making of sounds. Then some day, in the presence of a watchful mother, the baby hits upon a happy combination of sounds which has meaning to her. It may be "ma-ma," or "da-da." A threefold result now occurs. When the baby is petted and praised, results are seen in his wanting to repeat the accepted sounds; the mother gives him the combination again and again, with further praise when he again repeats it; and thus she establishes it. The

¹ Dewey, John, *The Child and the Curriculum*, pp. 31-32. Reprinted by permission of The University of Chicago Press.

child is then proclaimed to the family as having spoken his first word, and the baby book records the word and the date.

As a matter of fact, this combination of sounds is not yet a word to the baby. This stage represents in the infant's development the tragic formalities in reading and number work in the young school child referred to in the preceding paragraph. Only as the sound "ma-ma" is associated again and again with that benign provider of comfort, the mother, does the word really come to have meaning for the baby. This is a subjective process and not observable, so no one ever knows when it has been accomplished, when, that is, a baby says his first real word. As he comes to use it in appropriate ways, however, we know that the process is complete, that the symbol has been mastered. For the same reason the teacher needs to study the use of symbols made by her pupils in order to determine whether they have real meaning for those pupils.

Growth in vocabulary and in use of idiomatic language. Children differ as to the rate of mastering a working vocabulary, but by the time they reach school they are usually quite used to the language connected with their immediate environment. A number of studies have been made of the vocabularies of very young children, and we are gradually accumulating information as to the accomplishments of kindergarten and primary-grade children.¹

Not only is the list of words in a child's vocabulary important, but we need to know also the significance of the words as he employs them. Dr. Dewey pointed out many

¹ National Society for the Study of Education. *Twenty-Fourth Yearbook*, part I.

years ago that the single word is often used with the force of a sentence, so that *down* means *I want to get down*, *milk* means *I want some milk*. During the second year the complete sentence form is usually freely used, possibly in a series of sentences. Mrs. Lucy Sprague Mitchell¹ has done pioneer scientific work in this field. She demonstrates that there are certain peculiarities of language in this early stage, notably the provision for continuity in stringing sentences together with *and*, and the use of the double subject, as, for instance, *my mother she*. Teachers need not be distressed by these usages when they occur. Pronouns and prepositions indicate that relationships are becoming clarified. Both complex and compound sentences are often used by young children.

The teacher should observe and make note of the expressions employed by young children which indicate growing power over the complexities of our language. Not only unusual words, but idioms and sentences which are especially fitting, should be noted. Recognition of this growth will do much toward developing a wholesome attitude toward standards to be expected, and may help to overcome the bogey of language errors which has terrorized teachers for so many years.

Take, for example, the following illustration: Rose is nearly five. The family was moving, and she had been allowed to lunch at the home of a little playmate. The mother and brother had lunch at another neighbor's. Their hostess answered a knock at the door and found Rose and

¹ Mitchell, Lucy Sprague: *Here and Now Stories*. (E. P. Dutton and Company.)

her playmate. There was a very troubled expression on Rose's face. With obvious effort to meet the situation she said, "This is the way it is. We are going to move to Dayton, and I haven't any idea where my mother is. We've looked everywhere except in the cellar." The implication was that the mother had left her behind. Do little children often feel the need of such an introductory sentence? Could a better one have been used even by a grown-up to attract attention to an important happening? Is "I haven't any idea" an unusual expression for a youngster? "Except" is a comparatively advanced word.

Desirable characteristics in children's language. A little child's use of language is closely related to the routine of his everyday life. He talks with his mates about the things which they are doing; he questions concerning the many curious situations which confront him; and finally he plays with language in expressing his emotions. *Genuineness* becomes, therefore, a marked characteristic of what he says; a real situation calls it forth. So close is the relationship between situation and language response that *spontaneity* is naturally present also. He has learned neither the inhibitions which prevent speech when it would ordinarily be used, nor the artificialities which come from studied usage.

When the schoolroom atmosphere is of the right type, great *freedom* in the child's use of language results. Miss Temple has pointed out that it is as easy to teach children to talk together quietly as to teach them to be silent.¹ Possibly it is even easier. There are times when children need

¹ Parker, S. C., and Temple, Alice: *Unified Kindergarten and First-Grade Teaching*. (Ginn and Company.)

to keep quiet in order to listen to some one else. Such listening is of an active type, however, and should keep the children expectant. Too often the school has taught them to keep what Benjamin Franklin called "idle silence." "Not true silence, but only repressed speech," another author calls it. Now that "the busy hum of industry" is accepted as indicative of a high type of teaching, the teacher finds it easier to let freedom show itself in the children's conversation, as well as in their movements and their choice of activities.

To the extent that ideas and situations are clearly understood, children's language has a *downrightness*, a *vigor*, which are highly desirable. Children go right to the point without mincing words. When ideas and situations are not clear there is a tendency to ramble. Rich experiences lead to *fluency*.

Control of environment through language. The ability to use and to understand adequate expressions under certain conditions plays a large part in the safety, health, and courteous behavior of the little child. Very early he should be taught to tell his name, his father's or mother's name, and his home address and telephone number. He must understand signals as to fire drills and street crossings. Giving clear directions in careful English makes the ideas stand out more clearly.

To be able to discuss the facts that one did drink milk or have an orange or cooked cereal for breakfast, or that seven o'clock is bedtime gives dignity to those health habits. Mothers and teachers have long taken pains to teach the common courteous expressions — *please*, *thank you*, *excuse*

me. Playing at answering the doorbell and the telephone will help children to master the more or less conventional phrases used in such situations. Whatever the problem presented for the child to meet; whether he is coming into contact with adults or children; his position is much more secure if he has at his command an adequate vocabulary and a wide range of idiom.

The bogey of language errors. Whenever a group of teachers discuss the problems connected with language training, some one is sure to raise the question of how to deal with language errors. A child's use of an imperfect verb form may keep an overconscientious teacher from recognizing valuable qualities in the child's contribution.

Undeveloped people are likely to be poverty-stricken, as far as language is concerned, and a single expression may be used for several shades of thought. There are advantages in approaching the child's difficulty as an indication of poverty of language rather than as an error. He uses the convenient *ain't*, not because he knows *am not*, *is not*, and *are not*, and falls by the way in trying to use them, but because he has never become really habituated to their use. Learning is easier than relearning. The teacher's work should be to get rid of *ain't* by teaching the three forms whose place it conveniently takes. She should commend the use of correct forms, accustom the children to listening for them, and emphasize the expressions which she is trying to introduce.

Probably in no other field is so shocking a disregard shown for the laws of learning. The common practice is to attempt to develop a sensitive ear in the matter of speech by teaching the child to listen for and report those specific ex-

pressions which the teacher is trying to eliminate, and then commend the child for the reporting. Imagine training children to listen for and repeat imperfect tones in music, with praise as a stimulus for so doing. The absurdity of the practice is apparent.

The language game is in large measure an outgrowth of this erroneous attitude toward specific difficulties. There is some justification for its use in that it provides for ear training in the correct language form, but we know too little of the transfer effects to give it unqualified commendation. The teacher should be sure that the game is really a game, with something to win and a zest for the winning; that the form used is one in which the class needs specific training, and that a study is made of transfer effects.

Speech defects. Early discovery of those pupils who lisp or use "baby talk," or who stutter and stammer, should lead to prompt and specific help. Actual defect of speech is a problem which involves the home and the physician. Minor operations may be necessary. The building up of nerve stamina may be required. In any case the home should be working along the same lines used in the school.

The teacher should note the specific sounds which the child has difficulty in producing, and some playful use of such sounds should be planned. Then in a quiet atmosphere, without hurry or nerve strain, she should help the child to carry out this play. Ear images must be very clear, and the child may need to be made conscious also of position of lips and tongue. Best results are obtained when the playful use of the sound is given more attention than the intellectual elements. This work calls for unlimited patience,

for progress is very slow. But taking pains in such work is very much worth while.

Difficulties in reading and spelling are directly traceable to speech disorders. Such difficulties are prevented if the defects are corrected before reading and spelling are begun; but the real gain is, of course, in freeing the child from a handicap which would prevent him from becoming fully socialized.

Language situations in a day's work. Children in a classroom may be expected to be engaged naturally in conversation unless some definite situation makes quiet desirable for a short time. The morning greetings, the free period, and the continuous work on projects all present conditions in which the spontaneous give-and-take of conversation occurs as it does in life outside the school. One supervisor says: "I often enter a schoolroom and find myself disturbed by the noise. Then I look about for noise which should be checked, but as I study the children at work there seems to be good reason for every noise which I hear." Asked if a room was too noisy, another supervisor replied: "Are you judging by the noise inherent in the situation, or by your inherited prejudices?" How many of us have prejudices to overcome!

During a socializing period there is directed use of language and training in listening. The child who is speaking is expected to hold to a point, to say something worth hearing; the other children are expected to listen and to respond to what is said. The forward movement of the lesson depends very largely upon the command of language and of an audience which the speakers have under control. Fitness to

purpose and clarity are outstanding characteristics which develop under these conditions.

In story-telling a more extended use of language is essential. Continuity of movement, sequence of incidents, portrayal of character, and final unfolding of plot are all aids; they provide the speaker with something to say. Confidence and fluency are thus developed.

To recognize the essential values in a child's command of language, to expect him to show many limitations in its use, to expand gradually his control over the complexities of our rich, idiomatic speech, and to be alert for scientific studies which will give a real basis for methods — these should be the teacher's main problems in language teaching.

QUESTIONS AND PROBLEMS

1. Note, for a half-hour period, the oral language of a young child in a free environment. List (a) vocabulary, (b) especially significant expressions, and (c) types of sentences.
2. Visit a primary classroom. What opportunities for the use of oral language do the children have?
3. Read the instructions regarding order and discipline in a textbook printed at least twenty years ago. Note the contrast with present-day ideals.
4. Observe in a playground the most common expressions which indicate poverty of language. What expressions must be taught to replace these?

CHAPTER XXII

GROWTH IN CONTROL OF WRITTEN LANGUAGE

Complexities of the problem. A complex situation always presents itself when any unit of language is to be written. The act of composing is difficult; thought must be adequate; choice of words and construction of sentences must be fitting; and spelling, capitalization, and punctuation must conform to standard usage.

Tradition has long put a rather heavy burden upon the young child in requiring the mastery of parts of this procedure without relation to the whole task. Penmanship and spelling are commonly taught throughout the first and second grades, but with little reference to a worthy use. Pride of accomplishment in mastering processes which are used by others may give some satisfaction, but much of this particular work has little compensation besides boredom for both teacher and pupils.

Fortunately, greater emphasis on oral English is postponing most written work to grades in which the pupils are better prepared to master it. Also, that which is undertaken in lower grades is usually in connection with the children's actual projects, so that they realize its importance. And our better understanding of the laws of habit formation is helping us achieve a more scientific technique for teaching these more skillful processes.

Drawing as a language. The very little child finds satisfaction in making marks with pencil or crayon. He soon

reaches a stage where he puts meaning into his marks, however chaotic they may seem to the grown-up. By the time he is placed in school his drawings usually have some resemblance to the things which he is trying to portray. Throughout kindergarten, at first, and then in the early grades, he uses drawing freely and spontaneously to tell various stories, to illustrate experiences, and to carry messages to some one else.

This early drawing is often compared to the picture-writing or hieroglyphics of primitive people. It resembles them in its lack of proportion and perspective, in the striking results obtained in a few bold strokes, and in the crudities of form and color. But the picture-writing tends to become symbolic, while the child's drawing remains always a bit of spontaneous language. In teaching drawing we may well ask to what extent a better technique may be developed, not only without interfering with the freedom already present in the child's effort, but toward giving still greater freedom. For comparison with written language, however, our study will confine itself to the type of situation which the child portrays, the details which impress him, and his ability to present a complete unit. We shall then endeavor to help him accomplish similar results with written language — a much more laborious process since it deals with symbols. Until the written form of speech becomes second nature, the more simple process used during the early years is most useful in the child's development.

Units within children's ability. The written work which little children undertake is of two types: (a) the word or word group which fits into a larger project, and (b) the

sentence or series of sentences needed for a specific purpose. In the former class come labels for the play store, greetings for holiday occasions, and captions needed in booklets. The more elaborate communication is attempted in the genuine letter which is actually to be sent, the brief account of a class experience, or the original story which the imaginative child enjoys composing.

The teacher should be alert in discovering occasions when a bit of writing adds to the child's interest, dignity, or happiness. The very fact that special effort is required in written work should prevent the teacher from imposing such laborious tasks unless the children profit by them. Fortunately, when the teacher becomes accustomed to availing herself of occasions for the use of written work, she is surprised at the frequency with which they appear.

Early training in writing. The teaching of writing is recognized as a problem for the first-grade teacher. Strangely enough, it is easier to teach writing than to teach reading to many children of slow mentality. Scientific studies indicate, however, that a number of first-grade children have not developed anatomically to the point where they have control of all the necessary muscles involved in writing. Bone and muscle development and co-ordination of many nerves and muscles are basic conditions for the "muscular movement" which is recognized as an important part of penmanship. The very young child is not prepared to do this kind of writing. The studies made by Judd and Freeman prove that finger movement is always present in writing to greater or less degree. It seems to be the natural movement for the beginner. Get-

ting the form of the letters is closely related to drawing. Since speed is not attainable at this early stage, it is wise to follow the general rule of "accuracy first, then speed."

The free use of blackboard writing, the replacing of pens by large-sized pencils or crayons, the gradual reduction of the size of the child's writing, the use of paper with wide spacing — these are some of the changes which have come about in the effort to adapt the demands of the subject to the abilities of the young child.

Like other motor processes involving skill, penmanship is taught largely by showing the pupil what to do and how to do it. Accurate visual and kinæsthetic images must be built up, and credit given for attempts which approximate the correct form. The best methods at the present time attempt to teach the left-handed child to write with his right hand, but do not force the process if there is much difficulty in making the change.

Good posture should be insisted upon from the first. Posture is largely a matter of the adjustment of chair and table or seat and desk to the child's height, and of providing sufficient space to permit the paper and child's arms to lie easily on the table or desk. As was pointed out in an earlier chapter, there will be much unnecessary movement, much trial and error, but these are necessary conditions of learning. Practice periods should be brief for this type of endeavor is fatiguing. A few minutes a day of carefully directed work will quickly achieve the desired results.

Early training in spelling. Fortunately spelling goes hand-in-hand with writing, for the child must write something. Words which fit into his projects lend themselves

to the double purpose of subject-matter for both writing and spelling. The analysis which the teacher gives in explaining the writing she puts before the child may at times consist of naming the letters she is making. In this way most of the alphabet becomes gradually familiar.

Not until the second half of the first grade is reached does spelling become an established part of the curriculum. There is much to be said in favor of the plan, originating in some cities in California, of having no oral spelling in any grade, since written spelling alone is actually required in practical experience. Words for spelling lessons should be selected on the basis of frequency of use in motivated written work and of simplicity of form. Commonly used word groups should be taught as wholes: *Once upon a time, There are, Too many.*

Absolute accuracy should be insisted upon in this early work in spelling. Progress should be slow enough so that each child is certain of every word. This is one point where we realize the importance of habit training, and know that we cannot afford to leave hazy impressions. A misspelled word in either the first or second grade is an indication of poor teaching, as necessary visual and kinesthetic images have not been built up. Possibly an individual or a small group of children may not be able to master as many words as the majority of the class. In such cases the slower ones should be given only as many as they can master accurately.

The coöperative composition. This is the type of work by which teachers often develop such reading lessons as grow out of children's experiences. For many years teachers have made use of the cooperative composition when children's

needs indicate a longer unit of written work than they are capable of handling unaided. In the third and fourth grades this method should be freely used. There should be in the earlier grades an occasional letter or dramatization to be written out at length, but most of the work written cooperatively should consist of accounts of experiences.

Under the teacher's skillful questioning, the children compose sentence after sentence. Frequently a thought will be expressed in several different ways, and the children should have opportunity to select the best. The sentences are then written by the teacher, but she calls first on one and then on another child to write a word or word-group which he or she knows, or to place a period or a question mark.

Where a duplicating machine is available, each child may receive a copy of the production. The teacher may also use the composition for a lesson in copying, teaching the children to see the words clearly and copy them exactly, and also to look at a familiar word-group as a group rather than word by word. In the second grade the composition may sometimes be erased and each child allowed to write it for himself, making such modifications as appeal to him.

Group composition. An exceptionally well-grounded second grade may occasionally be allowed to work in groups, one doing the writing and the others giving suggestions. The teacher then spends the time going from group to group with suggestions. This is a step beyond the cooperative composition, but the child doing the writing is assured of needed help.

Individual compositions. While we may plan aids of various sorts for the child, we must guard against making him

overdependent or imposing, on the other hand, restrictions which prevent his feeling confidence in his own ability. Help with difficulties should always be available, and there should be encouragement for his earnestness, his originality, and his success in carrying out his own ideas. Standards for the written work of little children have yet to be developed. The teacher may keep samples of work produced from month to month, and in this way measure the progress which the children are making.

QUESTIONS AND PROBLEMS

1. Examine a second reader for common word-groups which may be taught as units in spelling.
2. Collect written papers of first or second grade children, and arrange in order of merit as a rough scale.
3. Sketch front and side views of a child sitting in hygienic position for writing.
4. Find the spelling errors in a set of compositions from an upper grade. Which of these words should have been thoroughly taught in second or third grade?
5. Gather samples of children's written work which illustrate genuineness, spontaneity, and especially apt use of words and idioms.

CHAPTER XXIII

IMPORTANCE OF THE BEGINNING YEARS IN READING

Need for scientific attitude by the teacher. In the last twenty years, great changes have taken place in the teaching of reading, and other changes will undoubtedly come in the future. Acceptance of these changes has been widespread because of the basis of scientific evidence underlying them. The scientific studies appearing before 1925 have been gathered together in published form, and are available to any teacher. The report of the National Committee on Reading is an attempt to interpret the best practice of the present day in the light of these studies. New readers are appearing which endeavor to provide materials better suited to the employment of scientific methods. Even the literature of advertising is replete with quotations from the exact studies made in this field.

Training in silent reading is largely replacing that in oral reading, because of the realization that it is used in real life to a much greater degree. At first this change affected the upper grades only, since it was found that more rapid eye-movement was gained in about the fourth grade. Two questions were raised by the leaders in primary work: (a) Would this more rapid eye-movement appear earlier if our reading methods in the primary grades were changed? (b) Since the technique of silent reading differs from that of oral reading, should not both be used from the first? Many changes in practice have grown out of the consideration of these questions.

Many details of method are in use the value of which has not been proved. All of these will in time be subjected to the test of scientific experimentation and stand or fall accordingly. At the present time the best procedure regarding phonics and the value of the use of flash cards are receiving such attention. Unless the teacher has an open-minded attitude she will not be in a position to profit by the results of these studies. Conflicts with the training she has received, with the requirements of older method readers which she must use, and with the standards of unprogressive administrative officers will be inevitable. But none of these is so serious as a closed mind on the part of the teacher, a stubborn adherence to an old-fashioned method. Fortunately, more and more our training centers are using methods which interpret and utilize results of scientific studies, some of them ranking high in their own contributions to such research.

When the child is ready for reading. Discussions have frequently centered about the best age at which to begin the teaching of reading. Occasional instances are cited of children who have been taught at the early age of three or four, or of others who have learned very rapidly when teaching has been deferred until they were nine or ten years old. Probably any bright child can be taught reading very early. The question is whether the child's time and strength may not be better employed in those activities which appeal to other children of his own age. Artificial isolation is resorted to when older pupils are kept from learning to read. Here the question arises as to whether the child has not lost in early companionship more than he has

gained. Could not the development in health, in love of nature and art which have been substituted, have taken place as accompaniments of the reading process? Tradition says that a child should learn to read upon entering the first grade. But tradition is an unsafe guide. And there is an element of unfairness and short-sightedness in compelling children to remain two and, in some cases, three years in a first grade because they have not learned to read.

Among the differences which children exhibit upon entering school is the difference in their attitude toward reading. We have as yet no adequate tests to show this special readiness, but the teacher is reasonably safe in expecting the brighter children to respond from the first to the new situations involved in learning to read. An occasional child, though bright, may not care for reading. This aversion may be due to immaturity, to having been read to at home more than is desirable, or to some wrong slant toward the subject, the origin of which is not easily discernible. However, most normal children who enter school expect to learn to read. A few will already have made some progress as the result of teaching at home.

The dull, slow group of children, those with intelligence quotients between 80 and 90, are not so eager for reading. Many of them come from homes where there are neither books nor magazines. Parents have not themselves become absorbed in this mysterious process. No picture book has ever provided stimulus for reading, as well as the joy of ownership. There has been no foreshadowing of the marvels of learning to read, and the intellectual effort necessary is a heavy drag upon their limited abilities.

Directed activities preparing for reading. Recognition that reading is a thought process depending upon a background of experience, upon facility in the use of idiomatic English, and upon an adequate vocabulary, helps us to see that much kindergarten and primary work has preparatory value for the actual reading situation. Moreover, analysis of this field of preparation suggests very definite types of training which will help specific groups. Often the home will be able to supplement such training under the guidance of the teacher.

These prerequisites to reading are summarized by Gray, in the Report of the National Committee on Reading,¹ as follows:

1. Wide experience, provided in harmony with the interests of children and preparing them to understand the stories and activities about which they will read.
2. Reasonable facility in the use of ideas, that is, ability to make use of past experience and information in conversation, in solving simple problems, and in thinking clearly about the content of what they read.
3. Sufficient command of simple English sentences to enable pupils to speak with ease and freedom. This in turn aids them in anticipating the meaning of passages and in reading fluently.
4. A relatively wide speaking vocabulary which enables them to recognize quickly the meaning of words and groups of words.
5. Accuracy in enunciation and pronunciation which insures right habits in the first reading experiences and eliminates the need of corrective exercises later.
6. A genuine desire to read, which aids in the interpretation of passages and which supplies motives that carry pupils through many difficult periods.

¹ National Society for the Study of Education. *Twenty-Fourth Yearbook, part I, Report of the National Committee on Reading.*

Teacher's freedom in the early weeks. The attitude of the child toward reading and the need of relating reading to his experience are accepted as having a vital influence on word mastery. Therefore the teacher is allowed far more freedom than formerly in planning her reading work during the first weeks of school. Eventually a scientific procedure may be developed which will prove of sufficient value to replace this opportunity for choice, but no such procedure has yet been discovered.

Many reading situations grow out of the experiences in the daily routine of the class. A word or sentence becomes associated with a given activity so that reading is meaningful from the first. More important than the preliminary vocabulary which is gradually built up in this way, is the child's discovery that reading is a part of life. Whichever way he turns, there is a challenging word or sentence which, interpreted at first by the teacher, gives definiteness to the situation. In these early weeks the child who is not ready for reading is discovered, and such work as is outlined in the preceding section is provided for him. Other groups become differentiated, so that at the close of five or six weeks the teacher has half a dozen groupings made.

Problem of the repeater. This early work may be quite lost for the child who is repeating the grade, or it may, on the other hand, be just what he needs. If he went through the preceding year without being aroused to any interest in reading, without making any apparent progress, he may need just this repeated stimulation. On the other hand, if he had done some book reading during that first year, he needs the challenge of the book from the first, however much this may be supplemented with blackboard reading.

His rate of progress also needs to be watched with care. At first he may seem to have forgotten everything, to be as helpless as the beginner. But as he gains some confidence, a period of rapid recall may ensue. The teacher should be on the alert to take advantage of such a period, to provide interesting material, to help him without seeming to do so, and to give him longer units to engage his attention. Problem cases and subnormal pupils may not respond to any of the ordinary means of teaching reading. More careful analysis should in every case be made of their difficulties.

Varying rates of progress. A sense of accomplishment is vital from the first if children are to find joy in the reading process. By keeping close watch over even the limited accomplishment of a slow group, the teacher will find opportunity for praise for the children and will keep herself from a sense of discouragement.

Even with children classified into four or five groups, according to ability, there is often a tendency to have several groups working on the same lesson, even though a pretext has to be found for keeping the bright group or the repeaters from going ahead. Whether it would be safe to say that no two groups should have the same lesson may be doubtful; certainly it is safe to say that a richer program may be provided if each group has a different piece of work. The bright group forge gayly ahead, often keeping the teacher struggling to supply enough reading material to satisfy their voracious needs. New methods of attack, variety in the type of response, and continuous checks are necessary to keep these children from thinking that mere amount of material read is the final goal in reading. A large group will

make steady progress. They may need to be aroused to wider interests, to learn to read "between the lines," and to use the ideas gained through their reading, but their daily work will not cause the teacher anxiety. The slower groups need an abundance of simple material, often much simpler than that provided for the grade. They need the stimulus of praise, for the work is doubly hard for them. They need work related to their outside life, so that mother's pantry, common street signs, and other outside agencies will offer continuous help in their learning to read.

"After all, there is something mysterious about this learning to read," writes a young teacher. "Anne is kept out of school several weeks on account of measles. She is not allowed to read during that time. She has been an indifferent reader before. On her return she blossoms out into one of the best readers in the class." Little second-grade Charles is placed in a third grade for summer school. His reading ability seems very mediocre the first week. An astonishing change takes place within a week. Questioned about it he says, "I had to. The other boys could read, and, besides, I liked the story." No one can predict absolutely when such sudden spurts may occur. They indicate the need for flexibility in transfer from group to group.

Thought values essential. A very common statement some years ago was that learning to read was work for the early grades, while reading to learn belonged to upper grades. More recent is the realization that the processes are the same throughout the grades, the differences being in degree or emphasis, not in kind.

The use of ideas, the relating of what is read to one's own

experience, and the extending of one's horizon by means of reading, should be a part of reading from the first. Unless this important fact is appreciated and the reading conducted to bring about such reactions, there is danger of training mere word-callers. The influence of thought processes on ability to recognize words is also to be considered. Perception is quickened by anticipation of meaning, while getting words through context relationships is probably the most economical method of word recognition. Again and again the teacher should ask herself, "What is this child thinking?" or "What thinking does this reaction show?" In this way she may avoid purely mechanical methods.

The place of accuracy. A jumble of blurred white marks on the blackboard or of blurred black marks on white paper probably represents the child's first perception of reading material. He does not know what to look for; he has no means with which to interpret the vague mass. Gradually he learns to follow the lines across the page, to select an occasional known word, and to find that word in another place. A succession of known units finally replaces the blurred jumble. We know too little about what characteristics help a child to recognize a word. Comparative length is one factor, general outline may be another, initial capitals and final letters which are two-spaced, as *g* or *y*, may help. There are probably other factors which we do not recognize.

The well-known laws of habit formation are operative here. One of these laws is, *Permit no exceptions*. Especially with the child who is slow to learn, great care must be taken to build up carefully a reading vocabulary which he "knows that he knows." The more capable child learns early to

figure out new words for himself, but the child who learns slowly does not do this so readily. He needs the assurance which comes with certainty.

Some unrecognized abilities. So complex is the reading process that the teacher often fails to recognize minor abilities which pupils have mastered, so troubled is she by major disabilities. Progress made in mastering even minor difficulties is worth crediting, however, and recognition of such progress may lift both teacher and pupil from the slough of despond.

James made no score on a first-grade reading test, in spite of his months in the grade. Mastery of a number of these minor abilities was shown, however. He recognized a few words, he matched words readily, his marker followed the sequence, he used it in finding word-groups, he followed the general thought of the story and fitted new words into the thought successfully, and he could find words and word-groups several times on a page. Surely he could not have done these things without careful training, and, having done this, there was reason to expect him to learn to read eventually. The discouraged teacher found that she had partially succeeded where she had thought that she had failed utterly.

The following suggestions may help determine progress:

ANALYSIS OF MINOR ABILITIES

- I.** Recognition of a reading situation.
 - A.** Curiosity as to signs; advertisements; labels in and out of school, at home.
 - B.** Looking at picture books; curiosity as to names and stories.
- C.** Recognition of word and words in a situation:
 - 1.** Association of word with action, object, picture, music, writing.

2. Matching word with word in situation.
 3. Recognition of word alone.
- II. Beginning to read in the book.
- A. Handling the book.
 1. Ability to hold book right-side up.
 2. Ability to find given page by picture, by number.
 3. Ability to use marker.
 - a. To place below given line.
 - b. To move from one line to next.
 - c. To move to keep up with reader.
 - d. To move to keep up with sequence.
 - e. To find word-group.
 - f. To find special word.
 - g. To know proper time to discard marker.
- III. Ability to follow thought-sequence.
- A. To carry general idea of story in mind.
 - B. To fit new words into thought.
 - C. To get new words from content.
- IV. Ability to recognize a few words with certainty.
- V. Ability to get words from positions.
- A. At beginning of line.
 - B. At end of line.
 - C. In word group.
- VI. Ability to get words from capitals.
- VII. Ability to find name several times on page.
- VIII. Ability to find other words or word-groups several times.
- IX. Ability to remember word which has just been called.

A testing program. Continuous testing is necessary if the work is to proceed on a scientific level. The teacher needs objective data to safeguard her groupings and regroupings, to make possible comparisons with other grades, and to let parents, supervisors, and the children themselves realize that progress is being made.

Standard tests may well be given several times during the year. Most of these tests are now furnished in three or four forms so that the influence of recall is removed. Every

teacher should have some experience with their use. Informal tests may be developed by any teacher. Miss Zirbes has given many types of such tests in the report of the National Committee on Reading. A plan should be developed for making a permanent record of the results even of the simple tests. Such checking up of progress prevents the teacher from accepting the appearance of results; the child who is reading from memory is soon discovered, as is the one who is depending too much on the teacher or on his mates. Fortified by the results of such a testing program, the teacher knows where she stands when the question of promotions is raised. Moreover, the children themselves acquire a better sense of responsibility as the tests show them exactly where they stand in learning to read.

Problem cases will arise. The earlier these are discovered, the sooner remedial measures can be applied. We may some day use such scientific methods that problem cases will disappear. At present we are in a position to discover them early, and we know a little about remedial measures. Reading ability must usually be a requisite for promotion from first or second grade. No problem case should be passed to advanced grades until every effort has been made to diagnose and conquer the difficulties.

The normal child learns to read in the first or second grade, attaining an attitude toward reading which is most desirable, finding joy in this new attainment, and reaching a satisfactory degree of rate and comprehension. More scientific methods will doubtless raise our standards. But the teacher now has opportunity to compare the results made by her pupils with those of the country at large.

QUESTIONS AND PROBLEMS

1. What are the differences between the processes of oral and of silent reading?
2. Compare the main suggestions for teaching beginning reading found in several teachers' manuals. Are the differences in fundamental principles or in details?
3. Observe for several days a child who has just awakened to the joy of reading, who feels a sense of accomplishment. What evidences does he give of this awakening?
4. List the leading interests of several children whom you know. Examine their reading material. Which of their interests are not provided for?
5. Examine several standard tests in reading for use with young children. Note the increased ability from grade to grade shown by the standards recommended.

CHAPTER XXIV

INTERPRETATION OF EXPERIENCES WITH NUMBERS

The old formalism slow to disappear. Great as has been the improvement in the teaching of numbers there is probably no field in which formalism has continued to hold sway so persistently. This fact is due largely to two factors: (*a*) the elusiveness of number experiences, and (*b*) the extreme symbolism of arithmetical terminology. It is difficult to believe in the reality and the sufficiency of number experiences, to recognize the changes they bring about in a child's interpretation of the world about him, and to give him credit for attitudes and knowledge of relationships apart from his ability to handle symbols. John has trouble with his number combinations, and we forget his ability to make change for a dime, his care in looking after his lunch money, and his delight in having a savings bank account. The question is one of proportion, but tradition places too great emphasis on accuracy in handling the terminology without regard to whether it really symbolizes. An untrained administrator can see figures made by children; he may, nevertheless, be totally unable to judge educative results.

Number elements in experience to be utilized. The everyday experience of children is full of number relations. To discover these, and to make them richer and fuller through her teaching, is the duty and privilege of the teacher. In one room children bring in milk-money daily to the teacher. She writes the name of each child on her paper,

and then writes the total number on a slip, which is sent to the office. When the milk arrives, she calls the children whose names are on the tablet and gives each his bottle of milk. No attempt has been made to utilize this daily routine and by it to have the number experience of the class enriched, although the occasion is invaluable for such instruction. Another teacher has each child who brings his milk-money write his own name with the amount beside it. If he cannot write, she writes the name and lets him draw the three pennies. The number of children who bring money and the total amount of money collected are determined by counting, and the numbers are written by the children. The slip for the office is prepared — with such care! — by one of the children. When the milk is delivered, the children check the order to see if the proper amount has been received. They may learn to count more easily by fives and tens, noting the precise rows in which the bottles are arranged in the boxes. The number of children who take milk one day is compared with the number who took it yesterday or last week. If a campaign is being carried on, each child may cut out a picture of his bottle of milk and paste it beside his name in the column on the blackboard. The week's results constitute splendid number work, and the child has otherwise profited by his participation in a valuable health movement. Here the teacher has made the most of the number opportunities presented by an everyday experience.

Symbol's to be understood. In chapter twenty we have shown how a symbol comes gradually to have meaning. In number work it seems easier to teach children to juggle with figures than to teach these figures as symbols which grow

out of meaningful situations. Figures lend themselves to learning as do nonsense syllables, and many teachers fail to see that they are equivalent to just so much nonsense to many children and need therefore intelligent interpretation. Later arithmetic comes to be a difficult subject in a book, but without relation to life; children cannot "do" it, and they fail to pass merely because the symbols have never acquired meaning. All number terminology, all forms used in expressing relationships, belong in this category. Unless each fits into the child's world, through persistent use in meaningful situations, there is grave danger of formalism, of the symbol failing to represent something intelligible to the child.

Contrast the ease with which pupils learn new ideas about money with their difficulty in learning the terms plus and minus. Yet money itself is only a symbol of value. However, it is used daily at home and on the street, children themselves handle it at the store, at the "movie," on the street car. No little child ever comes into contact with the words plus and minus except in school, yet these terms must be taught, since they are a part of the language of arithmetic. Therefore they must be taught in such a way that they will have meaning.

Economy is the main reason for using symbols. Often this economy is indicated by having an expression written in several ways. One clarifies another, and the simpler form stands out. It is injudicious to call a child's attention to his difficulty; it is wise to give him a wealth of associations fitted to clear up that difficulty.

Symbols to be used freely. Frequency of use is necessary

if any language is to be mastered. When we think of number symbols as a phase of language, we recognize the need for their frequent use. This may be done in part by calling attention to number aspects of life in oral conversation. Children may associate these aspects with magazine pictures or with their own drawings. The library table may contain several books on beginning number work. A charming picture of a mother duck whose brood had become scattered, was in one case interpreted as showing that altogether she had seven little ones. Did the children lose any of the poetry of the scene when this was expressed conventionally? Yes, if the picture was used merely to bring out a combination of numbers — that is,

$$\begin{array}{r} 4 \\ 2 \\ 1 \\ \hline 7 \end{array}$$

But if the expression in figures was used incidentally as a convenient way to show a fact related to a happy scene, then the child lost nothing of the meaning of the picture. When asked if he could show

$$\begin{array}{r} 3 \\ -1 \\ \hline 2 \end{array}$$

by a picture, a little child drew a load of hay on top of which two men were perched securely, while one was shown in the act of falling to the ground.

Strangely enough, while we recognize the value to reading of having children browse around among a rich supply of books, we fail to see that number work would advance more

rapidly if similar opportunities were offered. There are at least a half dozen number books for beginners which might well be challenging second-grade children. Curiosity would be aroused, class teaching would be reënforced, and greater interest in arithmetic texts would be engendered if teachers would provide this means of growth. We need more such books.

Varying difficulty of combinations. We do not know as yet why one number combination is difficult to learn and another easy, but experimentation has shown much as to the relative difficulty of the combinations. Possibly the similarity of the terms may influence such simple ones as:

$$\begin{array}{r} 1 \quad 2 \quad 5 \\ 1 \quad 2 \quad 5 \\ \hline 2 \quad 4 \quad 10 \end{array}$$

There may be a pleasing eye appeal in the pattern, or the likeness of sound may give satisfaction. Frequency of use is unquestionably a very large factor, calling for unusual care in the distribution of practice. There may be no inherent difference in difficulty of learning between

$$\begin{array}{r} 4 \\ 3 \\ \hline 7 \end{array}$$

and

$$\begin{array}{r} 9 \\ 7 \\ \hline 16 \end{array}$$

We do not know.

A serious handicap in the teaching of number combinations lies in the fact that, from the beginning, too great em-

phasis is placed on children's knowing the missing term. The whole series

$$\begin{array}{r} 4 \\ 3 \\ \hline 7 \end{array}$$

needs to be presented a number of times before the responsibility is placed upon the children of being able to supply any one of the missing terms.

$$\begin{array}{r} 4 & 4 \\ 3 & \\ \hline 7 & \frac{3}{7} \end{array}$$

Moreover, there should always be some recourse for the child who is uncertain as to the missing term. The combinations may be on the blackboard, or on a chart or card to which he has access. After all, we are interested in *teaching* him the facts; yet our practice too often is one of continuous *testing*.

Individual differences appear here, both as to the rate at which children learn combinations and as to specific combinations which give individual children trouble. It is essential that new combinations shall be presented only as rapidly as a child can master them, and that any individual difficulty be followed to the stage of overlearning. Here, as in spelling, much difficulty in later grades will be avoided if the foundation work is carried on with regard for the psychology of habit. The habit of learning with certainty is safer than the too-common habit of failure.

When learning in series is wasteful. That which is to be used in serial relation and nothing else, should be so learned. For economy of reference many items are arranged in series

when their use has no relation to serial form. The multiplication tables furnish an excellent illustration. Economy of learning requires that multiplication tables should not be taught as tables — a most astonishing point of view to many. Multiplication facts are to be used individually, and they should be so taught. The child who needs to use the fact that 7 times 9 are 63, should not have been taught by a method which suggests his beginning at 1 times 9, and working through the series until he reaches 7 times 9. He may build up some of the tables, he may even have part of a table for reference, but he should not learn them as such. The placing of addition or subtraction examples in serial form is often defended as appealing to rhythmic impulse. It has, however, the objection stated above, and the additional objection that it may lead to wasteful counting, even to counting on the fingers.

Immediate correction of errors. Myers has pointed out the positive nature of an error, and its tendency to persist even after many correct responses. The more quickly the right response takes the place of the error the greater the economy of time and effort. A child who knows, the class as a whole, or the teacher may give the correct answer, or the child may be referred promptly to the blackboard, chart, or card which contains the required combination. To leave him floundering, guessing, "thinking," is foolish, nor should he be allowed to count on his fingers, nor to find the answer with marks, or sticks, or pegs.

Number games and drills. The arithmetic game utilizes the natural instinct for play, employing it in gaining a knowledge of number facts and relations. The emotional

tone present in a well-conducted game is most favorable for stimulating the pupils to desire this knowledge. The arithmetic drill takes account of the need for making number facts automatic, and works in accordance with the well-known laws of habit formation. Each supplements the other. The game furnishes motive for the drill, since success comes to the one who knows his number facts; while the drill makes possible a speed in the game which adds zest to the fun element. Both give the children a consciousness of power. When beginning a game, recall rapidly the number facts which may give trouble while playing it; also, when beginning a drill, recall the game in which the number facts are to be used. Many games can be utilized in several ways by varying the process used; that is, a game described as scoring by addition may be scored by multiplication. Needed combinations should be on the blackboard, for reference as needed. In playing sides, the children or groups of approximately equal ability should be pitted against each other.

Essentials in the game.

The spirit of fun.

A goal to be reached by an individual or group.

A clear understanding of the game by each child.

Knowledge of combinations.

Planning by class.

Convenience of materials.

Ability to give commands, to take commands.

Ability to keep scores, to compare results.

Rapid reaction.

Teacher's problems in the game.

To select leaders, keeping herself in the background.

To provide for initiative and invention by helping children to modify games and invent new ones.

- To discover combinations which give individual children difficulty, following this by needed drill.
- To help children to feel their power.
- To get slow pupils to take part.
- To train children in keeping neat and accurate scores.

Essentials in drill.

- Adequate motive.
- Accuracy, correct answer following wrong answer immediately.
- Repetition of combination which gives difficulty.
- Repetition by child who has difficulty.
- Clear understanding of drill by each child.
- Independence of pupil.
- Ability to give commands, to take commands.
- Reasonable speed, gradually increasing to a sane maximum.
- Convenience of materials.
- Variations in drills given.
- System in using all possible combinations which are to be taught.
- Wide-awake and alert leaders.

Teacher's problems in the drill.

- To keep alive the desire to achieve the result.
- To discover the children's difficulties, meeting them promptly.
- To secure maximum of attention with minimum of effort.
- To recognize signs of fatigue.
- To use emulation wisely, working toward group success or a pupil's gain over his own former score.

Number in the child's expanding world. Like other experiences, those involving numbers make a positive contribution to the life of the growing child. Whenever number relationships interpret a new situation, whenever this new vocabulary clarifies an experience, whenever exactness of computation makes a vital situation workable, there has been real growth. Enough is known of the factors involved

so that there need be no fear of placing emphasis on the extraneous, no bogey of a hard subject need frighten the children. Steady, sane teaching should bring joy in number work as in the other fields dealing with the interests of young children.

QUESTIONS AND PROBLEMS

1. Children come in contact with house, telephone, and automobile license numbers. How may the teacher utilize these experiences?
2. Emmy Lou spent much time "copying digits." Mention three ways in which this practice was futile for her.
3. Examine several number books for beginners. Select two or more words which belong to the special vocabulary of numbers. Find the frequency of their use, page by page. Is this adequate to insure their becoming part of the pupil's working vocabulary?
4. Watch children working out a large project. What opportunities are discovered for rough measurement, exact measurement, and learning new number facts?
5. Observe children spending money in a store or at a festival. What knowledge of values do they show?
6. Study the possibilities for using numbers in a well-known game: (a) in determining conditions for playing, (b) in varying those conditions, (c) in scoring, and (d) in varying the method of scoring.

SELECTED REFERENCES FOR PART III

- Buswell, Guy T. *Fundamental Reading Habits; A Study of Their Development.* (1922.)
- Clapp, F. L. *Number Combinations; Their Relative Difficulty and the Frequency of their Appearance in Textbooks.*
- Driggs, H. R. *Our Living Language.*
- Freeland, George E. "A Year's Study of the Daily Learning of Six Children"; in *Pedagogical Seminary*, June, 1921.
- Freeman, F. N., and Daugherty, M. L. *How to Teach Handwriting*
- Gates, A. I. *The Psychology of Reading and Spelling, with Special Reference to Disability.* (1922.)
- Geiger, Ruth. "A Study in Reading Diagnosis"; in *Journal of Educational Research*, November, 1923.
- Hollingsworth, Leta S. *The Psychology of Special Disability in Spelling.* (1918.)
- Jenkins, Frances. *Reading in Primary Grades.* (1915.)

- Leiper, M. A. *Language Work in Elementary Grades.*
Leonard, S. A. *English Composition as a Social Problem.*
Losh, R., and Weeks, R. M. *Primary Number Projects.*
McLaughlin, K. L., and Troxell, E. *Number Projects for Beginners.*
Mahoney, J. J. *Standards in English.*
Myers, G. C. *Prevention and Correction of Errors in Arithmetic.*
National Society for the Study of Education, *Twenty-Fourth Yearbook,*
part I, *Report of the National Committee on Reading.*
One Thousand Good Books for Children. United States Bureau of Edu-
cation.
Osburn, W. J. *Corrective Arithmetic.*
Pennell, M. E., and Cusack, A. M. *How to Teach Reading.*
Sheridan, D. M. *Speaking and Writing English.* (1918.)
Stone, C. R. *Silent and Oral Reading.* (1922.)
Thorndike, E. L. *New Methods in Arithmetic* (1921.)
Thorndike, E. L. *The Psychology of Arithmetic.* (1922.)
Thorndike, E. L. "Reading as Reasoning"; in *Journal of Educational
Psychology*, June, 1917.
Wright, Pearl. "How a Third Grade Class Enjoyed a Year of Remedial
Reading"; in *Childhood Education*, January, 1925.

INDEX

- Abernethy, E. M., 47.
Abilities, unrecognized in reading, 258
Accomplishment quotient, 103.
Accuracy, place in reading, 257.
Activity, types of, 77-78; building character through, 163.
Adaptation, a single scale of, 135.
Adaptive activity, 77.
Adjustment, social, as a factor in promotion, 198.
Adult point of view, the, 13.
Age, anatomical, 37; chronological, 37; educational, 103; mental, 103; overlapping of, 97, of repeaters in first grade, 103, physical, 37; psychological, 37, religious, 38.
Allport, T. H., 138.
Anatomical age, 37.
Animals, projects in caring for, 213.
Applied psychology of the kindergarten-primary child, 169-271; children's needs as a basis for school organization, 171-201, children's experiences as a basis for enriched living, 202-32; children's experiences arousing need for racial tools, 233-71.
Art, program time for, 194; contribution to child life, 226-32; art in the surroundings of the child, 226, early responses to color and music, 227; art in relation to children's projects, 227, the problem of technique, 229, provision for individual differences, 229.
Attendance, kindergarten, its influence on grade progress, 155.
Audience, learning how to interest an, 223.

Baldwin, B. T., 46.
Baldwin and Wood, 41.
- Basis of behavior, neural, 56.
Beginning years, importance in reading, 250-61.
Behavior, neural basis of, 56; types of unlearned tendencies of, 55.
Behavioristic psychology, in child-study, 20.
Berry, C. S., 152.
Biographical method, of child-study, 19.
Bodily basis of emotional response, 112.
Bodily control, period for training in, 192.
Burton, W. H., 88.

Character, building through free activity, 163.
Characters, in stories, compared with people in real life, 217.
Chassell, C. F., 137.
Child, volition in the, 128; child as a child, the, 36-133, childhood and growth, 36, the unlearned element in response, 55; the element of learning, 69; the intellectual element, 91; the emotional element, 110, the volitional element, 125; child as a pupil, the, 134-67, individual differences in children, 134, mental basis of classification, 145, educational and moral growth, 160.
Child psychology, orientation in, 3-11; origin, development, and present status of, 12-22, causes of backwardness of child psychology, 12, movements and great educators, 15, modern tendencies in studying children, 18.
Child-study, modern, tendencies in, 18.
Childhood and growth, 36-54.

- Children, training emotions of, 122; traits in volitional relationship, 129; individual differences in, 134-44; study of differences in, 137; school failures among, 138; differences in constructive abilities, 139; individualized treatment of, 145.
- Children, gifted, 105, 136.
- Children's experience, as a basis for enriched living, 202-32, arousing need for racial tools, 233-72.
- Children's needs, as a basis for school organization, 171-232; major groups, and groups within groups, 171, the schoolroom, its furnishings and equipment, 177, the day's work replacing the stereotyped program, 187; promotion standards, 195.
- Chronological age, 37.
- Circle activities, social development through, 206.
- Classes, experiments in various types, 154, classification, mental basis of, 145-59, individualizing treatment, 145; critical status of the entrance problem, 146, review of experimental undertakings, 147; influence of kindergarten attendance on grade progress, 155; general attitude toward school entrance and classification, 158.
- Classification and school entrance, general attitude toward, 158.
- Cleavage, between kindergarten-primary and primary-intermediate, 101.
- Clinical method, in child-study, 19.
- Color, early responses to, 227.
- Combinations, in number work, varying difficulty of, 266
- Community interpretation through projects, 207-15.
- Compensation, 84.
- Composition, cooperative, 247; group, 248; individual, 248.
- Conditioning a response, the procedure known as, 116
- Construction, projects involving, 210.
- Constructive abilities, individual differences among young children, 139.
- Control of written language, growth in, 243-49.
- Control, bodily, period for training in, 192.
- Controlled experimentation, in child-study, 20.
- Cooperative composition, the, 247.
- Coordinated activity, 78.
- Coordination, lack of, 45.
- Correction of errors in number work, 268.
- Correlations between mental and physical growth, 46
- Curve, normal, growth and, 38.
- Curves, growth, 42, 43, 44.
- Defects, language, 240.
- Development, emotional, principles underlying, 119; individual and social, 173, social, through games, 205; through the circle, 206.
- Development of individuality, the, 202.
- Development of the knowledge functions, 92.
- Dewey, J., 34, 233.
- Dickson, V. E., 103.
- Differences, the study of, 137.
- Differences between growth of boys and girls, 45.
- Differences, individual, 97, 98, 134-44; in children entering school, 171; individual, provision for, 229, sex, 100.
- Direct questioning, in child-study, 19.
- Directed activity, 77; preparing for reading, 253.
- Dissociation of desires, 84.
- Distribution, normal, curve of, 40.
- Downey, J., 130, 135.
- Dramatization, projects involving, 209.
- Drawing as a language, 243.
- Drills and games, number, 268.
- Dull children, 136. *See also Differences, individual.*

- Educational age, 38, 103.
Educational measurement, in child-study, 20.
Educational movements and leaders, 15.
Educational and moral growth, 160-67.
Educational-psychological leaders, 28.
Eighteenth-century influences, upon educational theories, 24.
Element, emotional, 110-24; intellectual, 91-109, learned, 69-90, unlearned, 55-68; volitional, 125-33.
Emerson, W. R. P., 52.
Emotion, modern scientific position regarding, 111.
Emotional element, the, 110-24; classification of the emotional processes, 110; modern scientific position regarding emotion, 111, bodily basis of emotional response, 112, genetic study of emotions, 114; principles underlying emotional development, 119, training emotions of children, 122.
Emotions, classification of, 110; genetic study of, 114.
Entrance and classification, general attitude toward, 158.
Entrance problem, 146, 171.
Environment, control through language, 238.
Equipment of the schoolroom, 177-86.
Errors, language, the bogy of, 239; in number work, 268.
Events and purposes, learning how to question, 220.
Excursions, projects as, 212.
Experience as a basis for enriched living, 202-32, socializing the class, 202; community interpretation through projects, 207, how the story extends experience, 216, contribution of the fine arts to child life, 226; arousing need for racial tools, 233-72; early use of language, 233; growth in control of written language, 243; importance of the beginning years in reading, 250, interpretation of experiences with number, 262.
Experimental schools, in child-study, 21.
Experimental undertakings, 147-59; high, average and low-speed groups, 147; the X-Y-Z grouping, 152; fitting the school to the child, 154; influence of kindergarten attendance on grade progress, 155, general attitude toward school entrance and classification, 158.
Experimentation, controlled, in child-study, 20.
Extroversion and introversion, individual differences in, 139.
Eye-movements, in reading, 250.
Failures, school, 138.
Feeling processes, classification of, 110.
Festivals, projects involving, 214.
Fichte, Johann Gottlieb, 26.
Fine arts, contribution to child life, 226-32.
First grade, individual differences among children of, 98, 99, 102, 103; mental ages of children, 147.
Formal subjects, periods for, 193.
Free period, a, 191.
Freedom, individual, building character through, 163.
Froebel, Friedrich, 30.
Froebelian philosophy, background of, 23-35; philosophical character of educational theories, 23, the eighteenth century influences, 24; the philosophical group, 25; the educational-psychological group, 28; Froebel's three principles, 31; post-Froebelian development, 33; where we now stand, 34.
Furnishings of the schoolroom, 177-86.
Games, social development through, 205.
Games and drills, number, 268.

- Gates, A., 62.
 Gates, G. S., 48.
 General psychology of the kindergarten-primary child, 1-167, scientific orientation in child psychology, 3-35, the child as a child, 36-133, the child as a pupil, 134-70.
 Genetic study of emotions, 114.
 Gesell, A., 156.
 Gifted child, the, 105, 136. *See also* Differences, individual.
 Glands, the, 50.
 Grade progress, influence of kindergarten attendance, 155.
 Grading, experiment in large elementary school in New York, 154.
 Gray, W. S. 253.
 Group composition, 248.
 Group story-telling, 223.
 Grouping, intelligence as a guide in, 172, for individual needs, 174, for social experiences, 173.
 Grouping of reflexes, complex, 57.
 Groups, high, average, and low-speed, 147, X-Y-Z, 152; major, and groups within groups, 171-76.
 Growth, childhood and, 36-54; what is growth, 36, types of growth, 36, growth and the normal curve, 38, typical studies of growth, 42; general growth characteristics of the period, 42; differences between growth of boys and girls, 45; correlations between mental and physical growth, 46; periods of growth, 48, factors conditioning growth, 50.
 Growth, educational and moral, 160-67, the moral factor, 160; sentimentalizing versus psychologizing in the field of morality, 161; superficial view of play, 161; critical view of play, 161; the mental kingdom, 162; building character through free activity, 163, the task of getting children to play aright, 163.
 Growth characteristics, 42.
 Growth curves, 42, 43, 44.
- Habits, or acquired modes of response, 57.
 Hall, G. S., 17, 88.
 Health, as a factor in promotion, 198.
 Hegel, G. W. Friedrich, 26.
 Height, growth curves in, 43.
 Height and weight, growth curves in, 42.
 Herbart, J. F., 29.
 High, average, and low-speed groups 147.
 Historical attitude toward the child, the, 12.
 Hollingworth, L. S., 230.
- Idiomatic language, growth in, 235.
 Illustrations, in books, place and character of, 221.
 Individual composition, 248.
 Individual development, 173.
 Individual differences, 97, 98, 134-44, individuality and types, 134; a single scale of adaptation, 135; gifted and dull children, 136, the study of differences in young children, 137, young school failures, 138; individual differences in constructive abilities of young children, 139, individual differences in introversion and extroversion, 139; significance for education, 141, conclusion, 143, in children entering school, 171; provision for, 229.
 Individual needs, small groups to meet, 174.
 Individual relationship, in socializing the class, 202.
 Individuality, the development of, 202.
 Individuality and types, 134.
 Individualized treatment of children, 145.
 Instinct, the doctrine of, 57-67.
 Intellect, basic theory of, 95.
 Intellectual element, the, 91-109; general psychology of knowing, 91, development of the knowledge functions, 92; significant developments in the psychology of know-

- ledge processes, 93; general intelligence among kindergarten-primary children, 97.
- [intelligence, maturity of, 105; among kindergarten-primary children, 97; as a guide in grouping, 172, as a factor in promotion, 197]
- Intelligence quotient, 95; distribution of, 106.
- [intelligence range, in grades IB, 148]
- Intelligence ratings, 99.
- Introversion, 84
- Introversion and extroversion, individual differences in, 139
- Irwain, E. A., and Marks, L. A., 154.
- Kant, I., 25.
- Kerfoot, J. B., 222.
- Kindergarten-trained *vs.* non-kindergarten-trained children, 105.
- Knowing, general psychology of, 91.
- Knowledge functions, development of, 92.
- Knowledge processes, significant developments in the psychology of, 93.
- Language, early use of, 233-42; symbols and their value, 233, how a word gets meaning, 234, growth in vocabulary and in use of idiomatic language, 235, desirable characteristics in children's language, 237; control of environment through language, 238; the bogey of language errors, 239, speech defects, 240; language situations in a day's work, 241; drawing as, 243; written, growth in control of, 243-49.
- Learned, the, in relation to the unlearned, 82.
- Learned element, neurological basis of, 69.
- Learning, basic material for, 72.
- Learning, the element of, 69-90; neurological basis of the learned element, 69; basic material for learning, 72; illustrations of child-
- ish learnings, 73; stages in learning, 77; laws of learning, 78, the learned in relation to the unlearned, 82; learning and thwarting tendencies, 83; what have children learned, 87.
- Learning in series, when wasteful in number work, 267.
- Learning process, illustrations of, 73-77.
- Learning tendencies, 83.
- Leibniz, G. W., 25.
- Liberty, individual, building character through, 163.
- Locke, J., 24.
- MacLatchy, J., 157.
- Major groups and groups within groups, the early school years, 171; individual differences in children entering school, 171, intelligence as a guide in grouping, 172; individual and social development, 173, larger groupings for social experiences, 173, small groups to meet individual needs, 174, differences in past and present practice, 175.
- Malnutrition, causes of, 52.
- Marston, L. R., 140.
- Materials and their care, in the schoolroom, 182.
- Maturity of intelligence, 105.
- McDougall, W., 58, 62, 120.
- Meaning, how a word gets, 234.
- Measurement, educational and mental, in child-study, 20. *See* Differences, individual.
- Mechanical intelligence, 107.
- Mental age, 37, 95; overlapping of, 97; of first-grade children, 147; educational age, and the accomplishment quotient, 103, and school success in first grade, 102.
- Mental basis of classification, 145-59.
- Mental growth curves, 44.
- Mental measurement, in child-study, 20.
- Mental and physical growth, correlations between, 46.

- Minor abilities, in reading, analysis of, 258.
- Mitchell, L. S., 236.
- Moral factor, in growth, 160.
- Morality, sentimentalizing *vs.* psychologizing in field of, 161.
- Moral-social age, 38.
- Music, program time for, 194; early responses to, 227.
- Neural basis of behavior, 56.
- Neurological basis of the learned element, 69.
- Normal curve, growth and, 38.
- Normal distribution, curve of, 39.
- Number, interpretation of experiences with, 262-72; slow disappearance of the old formalism, 262; utilization of number elements in experience, 262, symbols to be understood, 263; symbols to be used freely, 264; varying difficulty of combinations, 266, when learning in series is wasteful, 267, immediate correction of errors, 268; number games and drills, 268; number in the child's expanding world, 270.
- Oral reading, 250. *See also* Reading.
- Orderliness, schoolroom, standards of, 185.
- Orientation in child psychology, scientific, 3-35; origin, development and present status of child psychology, 12; background of Froebelian philosophy, 23.
- Otis, M., 137.
- Overlapping of mental ages, 97.
- Parker, S. C., and Temple, A., 237.
- Payne, G. H., 12.
- Pechstein, L. A., 81.
- Pechstein, L. A., and McGregor, A. L., 7, 43, 44, 51.
- Period, free, 191; for training in bodily control, 192.
- Periods, of growth, 48; in the school day, 188, for formal subjects, 193; for art and music, 194.
- Pestalozzi, J. H., 29.
- Philosophers, eighteenth-century, 25.
- Physical ages, 37.
- Physiological age, 37.
- Physical and mental growth, correlations between, 46.
- Planning the day's work, 187.
- Plants, projects in raising, 213.
- Play, superficial view of, 161; critical view of, 161, the share of nature, 164; the share of society, 164, the share of the individual, 164.
- Post-Froebelian developments, 33.
- Prejudice, 84.
- Principles, Froebel's three, 31.
- Program, school, 187-94, necessity for a program, 187; contrasts between the new and the old, some large periods for which to provide, 188, welcoming the children, 189; a socializing hour, 190, a period for training in bodily control, 192; where the three R's belong, 193, program time for art and music, 194, test in reading, 259.
- Progress, varying rates of, 196, 255; as a factor in promotion, 199.
- Projects, a period for, 191; community interpretation through, 207-15; the expanding world of the young child, 207; his energy and purposes meeting this challenge, 208; projects involving dramatization, 209, projects involving construction, 210, excursions as projects, 212, raising plants and caring for animals, 213, festivals as projects, 214; some results of the use of projects, 215; art in relation to, 227.
- Promotion, as a school mechanism, 195, as the home sees it, 196; when it is best for the pupil, 197-201; final consideration of, 200.
- Psycho-analysis, in child-study, 21.
- Psychological ages, 37.
- Psychology, the science of, 1-11; nature and scope, 6, application, 7; special fields, 7; character of, 14.

- Psychology of emotion; principles common to, 119.
- Psychology of the kindergarten-primary child, applied, 169-232; major groups and groups within groups, 171; the schoolroom, its furnishings and equipment, 177; the day's work replacing the stereotyped program, 187; promotion standards, 195; socializing the class, 202; community interpretation, through projects, 207, how the story extends experience, 216, contribution of the fine arts to child life, 226; early use of language, 233; growth in control of written language, 243; importance of the beginning years in reading, 250, interpretation of experiences with number, 262.
- Psychology of the kindergarten-primary child, general, 3-167; psychology for use, 3, origin, development and present status of child psychology, 12; background of Froebelian philosophy, 23, childhood and growth, 36, the unlearned element in response, 55; the element of learning, 69, the intellectual element, 91; the emotional element, 110, the volitional element, 125; individual differences in children, 134; mental basis of classification, 145; educational and moral growth, 160.
- Psychology of knowing, general, 91; knowledge processes, significant developments in, 93.
- Psychology for use, 3-11; what is a science, 3; is psychology a science, 4; the nature and scope of psychology, 6; applying the science, 7; limiting the field, 7; plan of treatment, 9; general point of view, 10.
- Psychology of volition, 125.
- Psychology, behavioristic, in child-study, 20.
- Quantitative terminology, 94.
- Questionnaire method, in child-study, 19.
- Racial factor, the, 102.
- Racial tools, need aroused by children's experiences, 233-42.
- Random activity, 77.
- Rapidity of growth, 43.
- Rates of progress, varying, 196, 255.
- Ratings, intelligence, 99.
- Rationalization, 84.
- Reactions, Thorndike's, description of, 62.
- Reading, importance of the beginning years in, 250-61; need for scientific attitude by the teacher, 250; when is the child ready for reading, 251; directed activities preparing for reading, 253; teacher's freedom in the early weeks, 254; problem of the repeater, 254; varying rates of progress, 255; thought values essential, 256; the place of accuracy, 257; some unrecognized abilities, 258; a testing program, 259. *See also Oral reading and Silent reading.*
- Reagan, G. W., 82.
- Reconditioning, methods of training for, 122.
- Reflex arc, the, 57.
- Regularity of growth, 45.
- Relationship, double, in socializing the class, 202.
- Relationship, volitional, traits of children in, 129.
- Religious age, 28.
- Repeater, problem of, 195, 254.
- Repetitive activity, 78.
- Report card, the, 200.
- Repression of desires, 84.
- Response, acquired modes of, 57; the unlearned element in, 55-68.
- Response, emotional, bodily basis of, 112.
- Responses, classification of, 63.
- Rigidity of educational system, 14.
- Rogers, A. L., 137.
- Root, W. T., 157.
- Rousseau, J. J., 28. .

- 122; social, 203; spelling, 246; the will, 131, writing, 245.
Types, individuality and, 134.
- Unlearned element in response, the, 55-68, types of unlearned tendencies of behavior, 55, the neural basis of behavior, 56, the doctrine of instinct, 57, attempt at classification, 61; in relation to the learned, 82.
- Vandewalker, N. C., 146.
- Variability of growth, 45.
- Visualizing conditions, how stories help in, 218.
- Vocabulary, growth in, 235.
- Volitional element, the, 125-33; general psychology of volition, 125; range of volition, 125; the question of will, 126, childish volition, 128; the childish traits in their volitional relationship, 129; the training of will, 131.
- Waddle, C. W., 18.
- Wagoner, L. C., 139.
- Waite, M. G., 155.
- Watson, J. B., 64, 66, 85, 118, 137.
- Weight-height-age table, 41.
- Will, the question of, 126, the training of, 131.
- Winnetka plan, the, 145.
- Woolley, H. T., and Ferris, E., 137.
- Words, the meaning of, 234.
- Writing, early training in, 245.
- Written language, growth in control of, 243-49; complexities of the problem, 243, drawing as a language, 243, units within children's abilities, 244; early training in writing, 245; early training in spelling, 246, the cooperative composition, 247, group composition, 248; individual compositions, 248.
- X-Y-Z grouping, the, 152.
- Yearbook, National Society for the Study of Education, 223, 235, 253.
- Zirbes, L., 260.
- Zornow, T. A., and Pechstein, L. A., 103, 105, 147.